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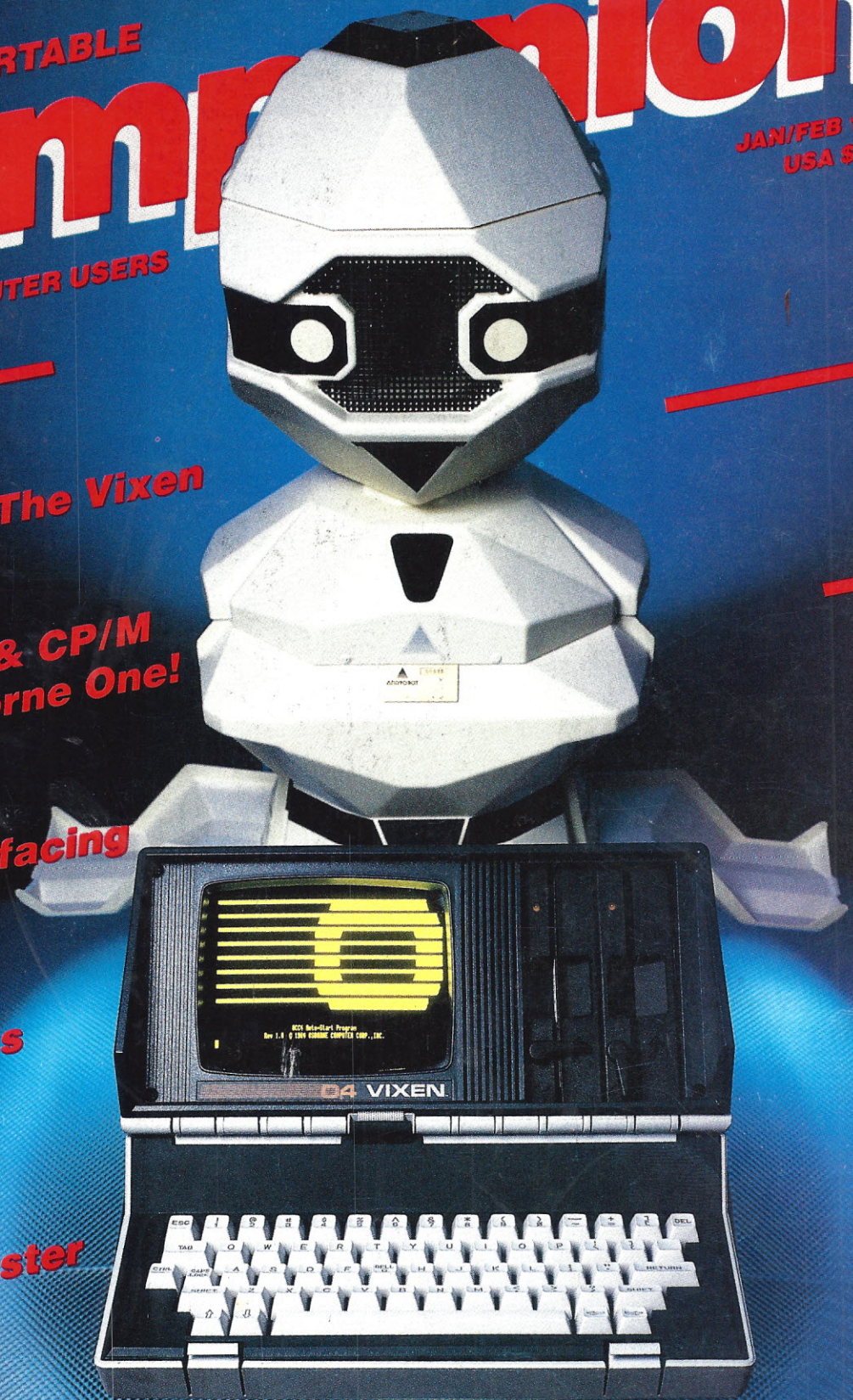
Review of Media Master



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Unfortunately, you cannot run 16-bit, IBM software on Osborne 8-bit computers. Nothing short of new hardware can make this possible, but most data files transferred to or from "foreign" formats (even the 16 bit formats) are completely compatible. This means that Wordstar files, Lotus 1-2-3 files, dBase II data and command files, SuperCalc files and many other types of data files may be freely exchanged with other computers. For example, the same Wordstar file could be started on an IBM-PC running PC-DOS and finished on the Osborne using Wordstar under CP/M!

Q. Why are Apple, Commodore and Atari formats not included?

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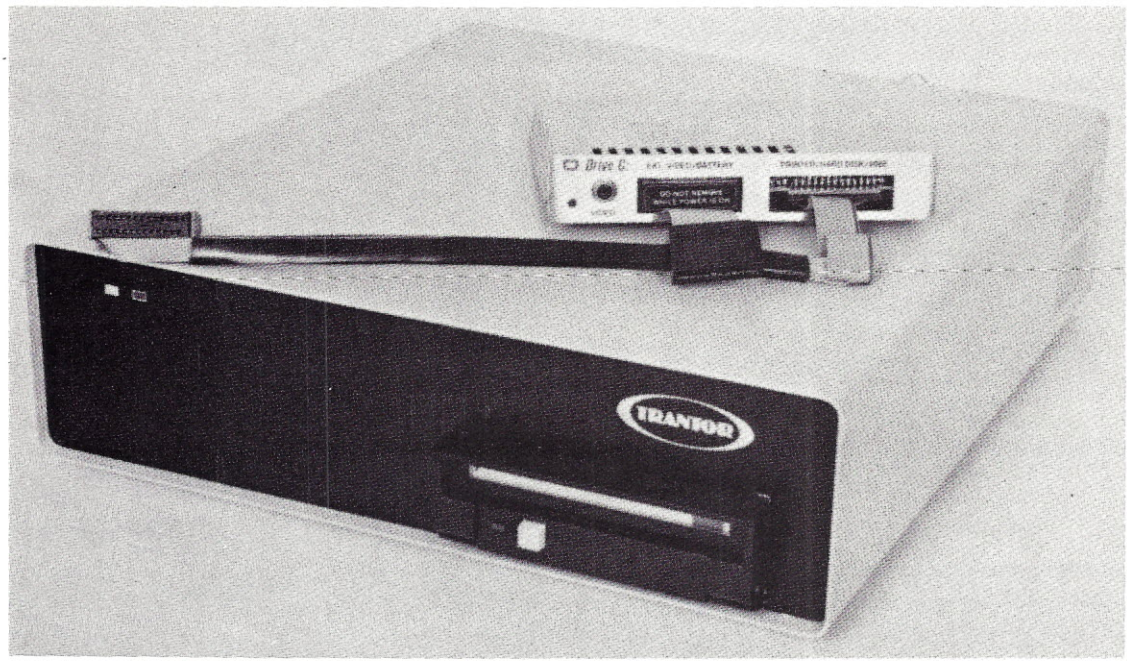

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Feature

Manufacturing The Vixen

ATS is Osborne's partner in the manufacturing process.

Tony Bove & Cheryl Rhodes

For a computer company to survive the shakeout occurring in the personal computer marketplace, it must find the market niche for its product, design the product well, and manufacture it cheaply.

It was no small feat for the reorganized Osborne Computer Corporation (OCC) to find the market niche for its product. Although the new OCC had several new products to consider, they had one already designed, prototyped and tested, just waiting to be unleashed: the Vixen. But the machine was two years old in a fast-moving marketplace. OCC marketing whizz Jim Schwabe had to painstakingly examine its strengths and weaknesses, and determine whether or not it would be an appropriate product.

The niche OCC discovered is an ever-widening one consisting of professionals (lawyers, writers, doctors, real estate investors, entrepreneurs), small businesses, educators, and students. The product is a complete computer based on the standard CP/M system and bundled with well-known software (WordStar, SuperCalc, MBASIC, Media Master and other tools). *(See previous is-*

Calibrating disk and monitor subsystems and testing components at ATS's San Jose factory.

sue for a complete description and review of the Vixen — ed.)

The value to a user can be enhanced by adding software to perform more specific applications; thus the product is appealing to "value-added dealers" and consultants who put together systems for clients.

Hence the market niche is one that serves very specific interests, or the general interest of managing a small business or profession, or writing and editing.

The price is right, compared to what you can get for $1298 at this time (including software). The hardware is the most expensive part to produce in quantity. The single most important factor in the Vixen's low price is the cost of manufacturing each unit.

A line of finished Vixens at the San Jose factory.

Huey Lee of ATS with a supply of Vixen parts.

Choosing The Method of Manufacturing

What directly contributes to the cost of manufacturing the Vixen? Components and subsystems must be purchased, tested, and integrated into each unit. The cost of these parts, plus labor and overhead, constitute the cost of manufacturing.

Computer companies try to do their own manufacturing so that they can control costs and the quality of the product. Many companies set up their own plants offshore, or contract foreign companies to manufacture the products, in order to take advantage of cheap foreign labor.

None of these methods were appealing to the reorganized OCC. The old Osborne Computer had contracted most of the manufacturing process to domestic and foreign companies, but did final system integration and testing at Osborne plants. Yet former employees of Osborne commented that the old Osborne was plagued with quality assurance problems, most of which were related to system integration and final inspection.

The reorganized OCC is a scaled-down version of the old Osborne Com-

Huey Lee, himself a refugee, employs many refugee families of different ethnic groups, and offers incentives for them to continue their education.

puter Company, and there was never any doubt that it would contract the manufacturing of their products to outsiders, at least for a while. OCC's choice in the method of manufacturing the Vixen was a crucial one: OCC essentially needed a *partner* who could manufacture the Vixen in such a way to keep its price low and its quality ratio high.

Enter ATS and its founder, Huey Lee. We talked with Mr. Lee and came away with the feeling that he knows about partnerships and about manufacturing.

ATS was started seven years ago (1977), "as a garage operation" Mr. Lee likes to add. As far as Silicon Valley companies go, ATS is almost an old-timer, having been around as long as Apple.

Huey Lee's background is in medical instrumentation and computer equipment, and he spent ten years in the aerospace industry, working on the Poseidon Project among others.

When Huey Lee started ATS, he had two partners, and their business was largely testing and repairing power supplies for Intel. The first partner left after one year, and the second after two years, mostly due to long hours with little or no pay. With a modest start doing PC (printed circuit) board assembly ($80,000 in sales in 1977), ATS grew to have 300 employees and $4 million in sales in 1984, with Huey Lee at the helm. ATS now has 35 active clients for PC board assembly and manufacturing, including big customers like Fortune, TeleVideo, and OCC.

Lee was a little skeptical about doing business with the new OCC. The old Osborne Computer Company had been hard to deal with, and as a result he had turned down an opportunity to manufacture the Osborne 1 and Executive computers.

The OCC reorganization team met with Lee and presented their entire plan, including the financial details. Their openness and willingness to cooperate made Lee feel more secure. The Vixen itself sold him. "The board is almost perfect" he said, alluding to the fact that it was thoroughly tested for over two years. He also agreed with Fred Coury's view that the Vixen was designed to be easily manufactured.

ATS Prepares To Make Vixens

It is typical for a computer company to present the entire financial strategy and sell the idea to the manufacturing partner. The objective is to reduce the manufacturing cost and increase profits for both partners.

ATS started by going over the documentation with OCC, and starting negotiations with suppliers. ATS dedicated a 17,000 sq. ft. factory in San Jose for assembling Vixens. The forecast from OCC was 10,000 units for 1985. OCC felt comfortable with this amount, and so did ATS.

The single most important factor in the Vixen's low price is the cost of manufacturing each unit.

ATS procured components based on OCC's forecast, and started assembly. From the start ATS sought to keep the cost of procurement down. The high

ticket items include disk drives, the seven-inch monitor, the keyboard and the power supply. As the Vixen is produced in larger volumes, these and other costs will come down further. OCC retains final approval on all parts procured for the Vixen.

The collaboration is supposed to allow both sides to be objective and pursue a strategy that benefits them both. Huey Lee says that OCC is "very receptive to new ideas," even though a lot of pressure builds behind a computer company to ship a product before it's ready. Both partners claim that they realize how important quality control will be in establishing credibility for the Vixen.

The Process

The manufacturing process has already started. We were shown Vixens in various stages of this process.

Printed circuit boards from Osborne Computer Corporation are tested in the 24,000 sq. ft. Fremont facility, then sent over to San Jose (ten miles away) where systems are assembled.

The components and subsystems come from various suppliers. The disk drive subsystem, the CRT (cathode ray tube) monitor, and the power supply subsystems are calibrated separately.

First the disk drives are tested and installed in the base of the Vixen shell. The printed circuit board containing all of the Vixen's computing circuitry is then installed in the shell, along with the interface board. Finally the CRT monitor is installed and the entire system tested.

The system is then "burned in" for forty hours by setting it to run a program over and over. This program is a set of special "diagnostic" routines that test all of the Vixen's components and memory areas (written by Dan Brown, system programmer for the Vixen). During the "40-hour burn-in" they run this program through 50 cycles, allowing only one error in twenty cycles. The integrated system test is 5 cycles, and the subassembly tests are two cycles each.

Right before packaging and shipping, a representative from Osborne does a "source inspection" to assure a quality product.

Kirk Powell, ATS San Jose Plant Manager, is ramping up to be able to match OCC's forecast, which in February should be one thousand Vixens a month.

ATS founder and president, Huey Lee, in his Fremont plant for PC board testing, with the first crop of Vixen boards.

Other ATS Operations

A lot of high volume computer manufacturing is contracted to foreign companies or transferred to offshore plants, where labor is cheaper. ATS is an example that bucks this trend in a manner that seems almost philanthropic. ATS pays a decent wage and employs refugees who are settling in the United States. ATS has many different ethnic groups working in his factories: Vietnamese, Chinese, Filipino, Korean, Iranian, Mexican, and Indian. He helps refugees by providing steady jobs.

Huey Lee is very proud of his incentive programs and cash rewards that help employees finish high school and college. He has hired entire families to help them get back on there feet.

The Vixen Project is one of several new ventures for ATS in which ATS manufacturers the entire system. They call this a "turnkey" operation. It includes procurement (buying supplies of components), testing, integration, final testing, and packaging.

ATS does this plus quality testing and inventory for DataSpeed's Quotrek, a

hand-held calculator-style receiver of stock quotations from KQED. ATS also does a full "turnkey" operation for the Intelligent Answer Back security control modem.

ATS also manufactures Validec's restaurant computer system, which includes hand-held units for waitpersons to use for ordering food, with the information fed automatically into the kitchen and cash register computers.

Printed circuit board assembly and testing is ATS's specialty. ATS does PC board assembly and testing for MOSTRON in Milpitas (IBM PC-compatible boards), and some assembly and testing for Televideo, Fortune, North Star, and Convergent Technologies.

Huey Lee projects $12 million in sales for ATS in 1985, and $25 million in 1986. This growth is attributable to the new contract with Osborne as well as DataSpeed, MOSTRON, Validec, and others.

ATS also packages the Pacific DataNet Vision series of hard disks (ten megabytes to 140 megabytes) and streaming tape backup systems.

They Know What They're Doing

The Vixen is a powerful computer at an excellent price, and because its design was tested for over two years, it promises to be reliable. Together with the Osborne 3 in Europe, the Vixen is Osborne's ticket back into the personal computer race.

Because some people are still wary of Osborne, the company is going to have to prove itself with quality merchandise. Quality control in the manufacturing process is therefore crucial to the Vixen's success.

Huey Lee of ATS saw that this was a problem his company could solve and profit from. Coming away from our talk with Huey Lee of ATS, we felt that the situation was well at hand. With partners like ATS, OCC has a fighting chance.

Letters

More on SORT

In the November 1984 issue of *The Portable Companion*, I concluded an article ("Arrange WordStar Text With SORT", p. 50) on the use of a public domain utility to select and arrange WordStar text by stating that the authors of the program were unknown to me. Since then information has come to my attention which will allow me to give full credit to the right people for this useful contribution to the public domain.

Although labeled demurely (and functionally) "SORT.COM" in the FOG library, (-FOG/UTL.005) the program is actually a version of a 1980 public domain effort called properly SORTV.COM. (I still don't know what the V stands for.)

The program was originally written in October 1980 (ancient history in the microcomputer world). The author was the redoubtable Ward Christensen. That is the same guy whose name adorns the Christensen Xmodem protocol for error-checked transfer of data, who also wrote the original Modem7, granddaddy of all free modem-driving software, and whose many other contributions to the microcomputer-using public are well known and should be well appreciated by all who use his many programs.

Modifications to SORTV were made by Keith Petersen, another name well known in public domain software, and by Ted Shapin.

Although the program announces itself during operation with a screen message (Revision 1.3) it is actually an assembled version of SORTV14.ASM, version number 1.4 which was published to the public in June of 1981.

The documentation has come to hand, and it is now clear that SORTV.COM (to use its proper name) can sort lines (and, as explained in the article, WordStar paragraphs) and can key on characters starting at a location other than the very beginning of the line. A "sort after skipping key" can be designated in the command line invoking SORTV.COM. This faculty makes SORTV.COM very useful for its original purpose which was to sort lists of data, such as mailing lists. For example, with some care in designating where to key for sorting and with perhaps some preparation of the file to be sorted beforehand, a MailMerge mailing list can be sorted on any field, such as a zip code, whether or not that field is in the first position on the record line.

I renew my thanks to Ward Christensen and the others who donated their efforts to provide the public with this useful tool.

Richard Drakeford
Kensington, CA

NewWord Faults

Thanks for reviving *The Portable Companion*. I found the second issue under the new management (July 1984) better than the first one, which wasn't bad, considering your time constraints.

However, I feel I've got to issue a warning concerning the article "Reverse Video and a Faster Serial Port" on page 24. I have long agreed with Thom Hogan that the underline cursor was inadequate and I ran out to have my machine modified for the solid block cursor and reverse video the day after I got the July issue. The modification does work as advertised, but only on the 52 column screen. It does not work on the 80 or 104 column screens which produce their video in the separate 80 column video board and bypass the video section mentioned in Hogan's article. Now if I had only figured that out before paying $50 to have the technician do the work and preserve my service contract.

It seems to me that there should be a comparable simple modification that I could do to the 80 column board so I

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ACCOUNTS RECEIVABLE provides **instant, on-line customer account information (both current and aged),** with complete, timely invoicing, including open-item (or balance forward) and statement capabilities. It makes the entire billing process fast, easy, and efficient. It quickly identifies your overdue accounts, **helps speed collections,** helps control your cash flow, and assists you in making better financial decisions. Both detailed and summary **customer activity and aging reports** are instantly available • Preprinted forms available for **invoices and statements** • **Optional service type invoice** • **Automatic finance charge calculation** • **Detailed audit trail** • Maintains comprehensive customer data files • **Produces 8 reports and documents** • Includes automatic periodic customer/client billing option which is ideal for service businesses • **Itemized monthly statements** • Master File capacity: 400 Customers • Monthly Transactions capacity: 800 with 200K diskette; 3,500 with 500K diskette; 7,000 per Megabyte with a Hard Disk.

ACCOUNTS PAYABLE maintains complete vendor/voucher history and includes **check-writing** capabilities. **Current and aged payable reports** are available upon command. It prepares an extremely useful **cash flow/cash requirements report** that greatly improves management control of your most valuable resource—cash! It prints checks (on commercially available forms on which **your company name, address and logo can be imprinted**) with comprehensive check stubs that your vendors will appreciate • **Produces 11 reports and documents** • Automatic pay selection program allows payment by due date or by discount date • **Manual and automatic checkwriting** • Check register • **Detailed audit trail** • Itemized monthly transactions • Master File capacity: 400 Vendors • Monthly Transactions capacity: 800 with 200K diskette; 3,500 with 500K diskette; 7,000 per Megabyte with a Hard Disk.

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Accounts Receivable **1.** Daily Transactions Report **2.** Invoices (with or without preprinted forms) **3.** Statements (with or without pre-printed forms) **4.** Summary Aging Report **5.** Detailed Aging Report **6.** Itemized Monthly Transactions **7.** Detailed Customer Activity Report **8.** Summary Customer Account Report **9.** Customer Mailing Labels

Accounts Payable **1.** Daily Voucher Report **2.** Daily Credit Report **3.** Checks with Detailed stubs **4.** Check Register **5.** General Ledger Transfer Report **6.** Cash Requirements Report **7.** Transaction Register **8.** Open Voucher Report **9.** Aged Payables Report **10.** Detailed Vendor Activity Report **11.** Summary Vendor Account Report **12.** Vendor Mailing Labels

Payroll **1.** Federal Tax Tables **2.** State Tax Tables **3.** Payroll checks with stubs **4.** Payroll Check Register **5.** Monthly Payroll Summary **6.** Quarterly Payroll Summary **7.** General Ledger Transfer Report **8.** Detailed Employee File Listing **9.** Produces 941 Worksheet **10.** Prints annual W-2 Forms **11.** Employee Mailing Labels

System Requirements: CP/M® with 64K RAM or PC-DOS (MS-DOS) with 128K • Microsoft BASIC • Two disk drives or hard disk • 132 column wide carriage printer, *or* an 8½"x11" printer with compressed print mode (an Epson MX-80 or similar printer).

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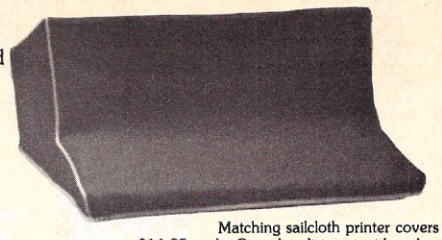

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Stop Tearing Up Your Disk Drives!

The Osborne can dump a file faster than a printer can accept it. This device will catch the file, quiet the disk drives, and let you compute again.

If you're using your Osborne as a printer buffer instead of a computer, you may be tearing up your disk drives. Disk drives are mechanical devices, they are often the first parts of a computer to go sour. No wonder. Everytime you feed your printer a file, the drives whirl madly until the printer has accepted the entire file. Sometimes this takes a long, long time.

If you're tired of hearing your disk drives grind down, you need a printer buffer. The best performance and price buffer on the market is the Consolink MicroSpooler. This computer-like tool absorbs files as fast as your computer can send them, and then patiently feeds or spools them to your printer a few bytes at a time.

CONSOLINK MICROSPOOLERS

Description	List	Price
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64 K P-S	$343.00	$299.95
64 K S-S	$349.00	$299.95
64 K S-P	$339.00	$294.95
Two Cables	$ 59.95	$ 39.00[1]

64 K Stores and spools files as large as 64 K.
P-P Parallel Osborne port to parallel printer port.
P-S Parallel Osborne port to serial printer port.
S-S Serial Osborne port to serial printer port.
S-P Serial Osborne port to parallel printer port.
Cables Set includes one special male to female connector and one male-male connector.
[1] Serial connection cables may cost extra. —Please tell us model and type of printer you're connecting to your computer.

Photo: MicroSpooler 64 K P-P

Includes these unique features:

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- Slimline attractive casing
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The MicroSpooler is an intelligent, feature-packed buffer. It is easy to install and operate. Merely place it between your computer and printer, then connect it with two cables, and feed files as large as 64K within seconds to your letter quality or dot matrix printer. The instant the transfer is complete, you can operate your computer again. The MicroSpooler does the rest.

The MicroSpooler comes in a variety of configurations. You can link your Osborne to any popular printer with two inexpensive cables. Please check our low MicroSpooler prices. You won't find a more feature-packed or reasonably priced spooler around. Try the MicroSpooler of your choice for 15 days. If you are not completely satisfied with your purchase, return it for an immediate full refund. Your Osborne deserves this attractive and useful accessory. Order a compact and powerful MicroSpooler for your computer today. Works with all model computers.

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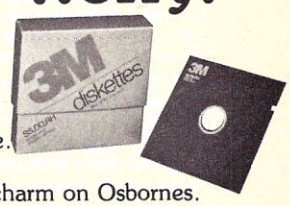

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If you want to share in the free software bonanza but don't have the time to search through piles of useless software to find a few precious gems, this book is for you. The list price of **The Free Software Handbook** is $17.95. Central's price is $15.95. If you want both *The Free Software Handbook* and all the programs reviewed in the book, send $49.95 and indicate your computer model. Save yourself the time and effort of compiling these valuable programs. Order today and save.

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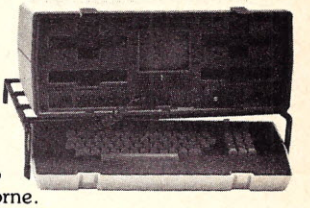

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Central Computer Products

What the Future May Bring

There's a new bandwagon forming out there in the personal computer market, and this one promises to be beneficial to consumers. Pioneering software publishers are introducing "low priced" software — packages that sell for under $100.

We've read about it in the trade press. One software publisher described how his company decided on an $89.95 price for its data base management software: "we traded off a high profit margin for market share and higher sales volume."

Not surprisingly, Adam Osborne jumped on this bandwagon as soon as it was available to him, and started a publishing venture called Paperback Software, which intends to sell software packages in bookstores for under $50 each. According to Adam, the high prices for software packages are going the way of the dinosaur. If the CP/M market is a reliable indication of this trend, he is right.

A friend of ours who runs a small software publishing business recently conducted a survey using a sampling of IBM and CP/M computer users, to determine the appropriate price (whatever the market would bear) for a software product that was not yet ready. They were developing both a CP/M and an MS-DOS (IBM PC) version of the product. According to our friend's description, both versions had the same functions and performed in the same manner.

The results of their survey showed that the correct price for the generic CP/M version was around $60, *but that the correct price for the IBM PC version was $250!*

Why the discrepancy? Maybe people think that the 16-bit version will somehow be better than the 8-bit one. Or perhaps corporate users who favor IBM tend to write large checks, and low-cost software would appear to them to be inferior.

For whatever reasons it is now common to see programs for CP/M computers priced lower than their counterparts for the IBM PC. We think it is only a matter of time before PC software prices come down to meet current CP/M software prices, and CP/M software prices to sink even further.

What this means for consumers is hotly debated at computer show panels by the experts. Some say we'll see a proliferation of software "titles" like paperback books, in the $5-$50 range. Imagine $5 programs for improving your writing style. Or a $25 jewelry store accounting and bookkeeping program. Or a $10 "expert system" to help you fix your car.

Buying software for your home computer may become second nature — like buying books for reading in your spare time. Meanwhile, "cottage industry" programmers will keep churning out programs that handle more specific "vertical" tasks, like managing a nursing home or producing Turabian-style term papers.

What does a future hold for Osborne computer users? Currently you have in your hands one of the more versatile computers of the information age. With the Media Master program (reviewed in this issue) your Osborne can read and write almost any $5^1/_4$-inch disk. The computer can run every CP/M program; with the CO-POWER-88 board (featured in this issue) it can run some IBM PC programs as well. You will probably continue to see inexpensive software packages available for Osbornes.

How will you find these packages? They will be available from Osborne dealers — we include a list in this issue. If you support your local Osborne dealer and join your local Osborne group, you'll find all the help you will ever need.

tb & cr

Review

The Datamaster Hard Disk For The Vixen & Osborne 1

Datamaster's hard disk adds ten megabytes of disk storage to your Osborne 1 or Vixen.

Gale Rhoades

Many of you will have read the review of the Vixen which was published in the November, 1984 issue (#14) of *The Portable Companion*. I am sure that most of you are therefore aware of the fact that I am totally enamored of the Vixen. I would never try to deny this allegation.

The Vixen is, without a doubt, the fastest computer I have used, and it is packaged with some of the most usable and versatile software on the CP/M market. The system software was written to take utmost advantage of the hardware design.

In contrast to the common practice of designing hardware and software separately, the hardware and software engineers worked together to produce the Vixen. Full disclosure occurred at each step of the design. At no time did anyone involved in the Vixen project have to guess what the other members of the team were doing.

I have been aware, since last May when I received the first "beta test" model of the Vixen, that many companies were already starting development on peripherals and add-ons for the Vixen. Osborne Computer Corporation was (and is) encouraging this development by making "beta test" models available as quickly as possible to developers.

One company, DataMaster, had an advantage. Composed of former OCC employees, they were able the hire the services of former Osborne software programmer Dan Brown. Dan, being the software genius behind the Vixen, knows the system software as no one else ever will *(see issue #14 for a brief interview with Dan Brown).*

When learning programming, a beginner often finds that the easiest way to begin is to modify an existing program. But it is not long before each person develops their own style of programming (much like writing). No matter how much documentation is included in the listing of a program, there is no way to document completely the thinking of the programmer.

Flow charts can hint at the overall picture. Line-by-line comments may count off the steps. In some cases, you may be able to obtain assistance from the original author. But always, it is rather like looking at the earth with a microscope. You can see each piece in detail but never the whole. With a great deal of dedication you can piece together a picture of that whole, certain but never positive that you haven't missed an important component.

This then is the quandary facing any third party manufacturer. It is also the advantage that Datamaster had in designing the hard disk which now carries the Osborne label.

Installation & Performance on the Vixen

The Datamaster hard disk is based on a Z80 piggyback interface. Once installed, the system normally boots from the hard disk. All of the features of the Vixen system are enhanced by the added speed of a hard disk.

While plans have been made for larg-

The Osborne Vixen and Datamaster ten megabyte hard disk.

er systems, only a 10 megabyte hard disk is currently available. Divided into two drives, with the A: drive having 4,128K bytes and the B: drive having 6,236K bytes, the minimum block size is 4K.

The large block size can be a disadvantage if you normally have many very small files. On the other hand, smaller block sizes would increase the system "overhead." As designed, only 1K is needed for the hard disk drivers. This means that the available memory on a Vixen with the hard disk is 1K less than a Vixen without the hard disk.

Installation is quite easy. As delivered to me for the review, the hard disk was completely installed. I received a Vixen and the hard disk in its carrying case. Everything was ready for a full demonstration. All I had to do was plug in the cable between the Vixen and hard disk, turn on the hard disk, turn on the computer, wait a few seconds for the monitor to warm up, and select an option from the menu. What a joy! Speed and every piece of software I normally use immediately on hand. Home with everything I needed and back to the office without a single floppy.

The reaction time of the hard disk made writing some new dBASE II programs for the office a joy. Sitting at a corner of the dining room table, I tested some new software, created new ".LBR" files for the RCP/M systems, wrote several letters and an article for the *FOGHORN*. It wasn't long before dawn arrived and I realized that I had forgotten to get some sleep — not a rare occurrence.

The hard disk was everything I could ask for. Standing on a 4.25" by 14.75" base, the hard disk actually takes about 5" by 18" of desk or table top space and stands about 8" high. A heavy 2" by 24" flat cable connects to a plug which comes from the piggyback board installed on the Vixen.

A few days later, in an attempt to determine how difficult it would be to install the hard disk on a Vixen if I had purchased them separately, I took the Vixen apart and removed the piggyback board. I re-assembled the Vixen and put it aside.

I then took apart the Vixen I had used to complete the earlier Vixen review (November issue, #14) and proceeded to install the hard disk. It was a snap. I was working without documentation but had the advantage of remembering where the pieces were on the original installation. Nevertheless, the design leads me to be certain that any technician or user who is familiar with the design of the Vixen could have accomplished the same result. Reasonable documentation should provide all the assistance most users will need (documentation not available at press time).

Software

Having spent many hours using other brands of hard disks, I think that there is a need for additional software to be included in the package. Foremost is software to facilitate backing up onto floppy disks. For the average user, particularly in the first months of use, NSWEEP from the FOG library will provide the only tool needed for backing up. However, large data files, such as a 5,000 name mailing list created with dBASE II could pose a backup problem.

Sure, you can break the file into smaller pieces by having dBASE II copy parts of the file onto the floppies. Or you could use PIP to break the file into pieces and to reassemble the parts if you needed to, but this option could deter you from making regular backups.

The average user, particularly when first faced with all the space and ease of

use a hard disk can provide, becomes over-confident in the system, the power company, and Mother Nature. Even users who never failed to create backups of their floppies slip into bad habits. If the backup procedure is too complicated or allows omission, it will not be long before adequate backups are not being maintained.

Ideally hard disk backups should include every file from every user area. They should allow the user to either restore all files or to select specific files, including wild card designations. They should also allow the user to easily redesign the layout of his system as part of the restoration (restore all files from Drive A:, User 6 onto Drive B:, User 2).

As with backups, the design of any hard disk must allow a great deal of flexibility for the user. Some applications, like running a mailing list for the office, must allow the program writer to set up a system which protects both the system and the data from the uninitiated, unskilled clerk who will be using the system. The bundled Vixen software (especially KEY, PROMPT, and STACK) and the auto-booting from the hard disk fulfill this requirement perfectly.

Other applications, such as the operation of an RCP/M system, require the ability to modify the operating system during on-line operations while retaining the normally operating system for system maintenance. The ability to install new system tracks on the hard disk at will and without rebooting will make this a snap. All that is required is to SYSGEN the hard disk from a file (a copy of which can be kept on either the hard disk or on a floppy). The new operating system immediately takes over.

I am sure that it will not be long before we see RCP/M systems running Vixens with the Osborne hard disk. And these will be extremely fast systems capable of rebooting after a power failure!

Osborne 1s But Not Executives

To the initial dismay of some, I was not completely satisfied. FOG members had been calling the office to see what we knew about the new hard disk. Since most of them were interested in adding the hard disk to their Osborne 1's and Executives, I asked if it would be possible for me to install the hard disk for these systems. The hard disk does not yet work with the Executive but continuing development should see the Executive version of the hard disk released in a couple of months.

All the pieces for installing the hard disk on an Osborne 1 were shortly delivered. About thirty minutes after sitting down with the piggyback board, ROM chip, and software, I had the hard disk completely installed on the Osborne 1 with no loss of data. (I modified the installation procedure so that the hard disk was not reformatted.) In fact, I am completing this review at the keyboard of an Osborne 1.

The first thing I noticed about using the hard disk on the Osborne 1 was that it was so fast. A conversation with Dan Brown revealed the reason for the new ROM chip. While writing the drivers, he decided to do some "fixing." The result is that any operation not involving the console now runs noticeably faster. Running a spelling checker on a large file took so little time that it was done before I got back with my cup of tea — no standing around waiting for that job. Doing a complicated REPLACE operation in dBASE II was disappointing only because I made a mess of the formula.

I have a couple of suggestions for anyone considering purchasing this system, particularly if they are planning to use it on an Osborne 1. Send your computer in for piggyback board factory installation. The cost is only $22.95 (that's twenty three dollars, not twenty three hundred!) and includes a full check-up for your Ozzy. Be sure to get the installation documentation so that if you ever decide to move the hard disk to another system you will be able to. If you have several computers, select the one with the flakey drive — using a hard disk greatly decreases the wear on floppy drives.

I will probably begin transporting the hard disk alone since all that is necessary, each time I switch computers, is to plug in the cable from the hard disk and re-initialize and SYSGEN the hard disk — a job that takes only a couple of moments to execute the SUBMIT file included with the software.

Conclusion

I love hard disks. Having started my computing history on the single density, 92K Osborne 1 disks, my first experience with a hard disk quickly allowed me to know the freedom of having space sufficient to the job at hand. In every case, the speed of operation of the Datamaster hard disk greatly surpasses a floppy based system.

Differences in speed between various hard disk systems are attributable to differences in the method of interface as well as the software drivers. Most users, however, will not be able to identify this difference, not significant on the stop watch unless the file being manipulated is quite large.

Hard disks, as with any major equipment purchase, should be selected on the basis of the ability to fill a need. Since this ability must include long term reliability, I will not attempt to specify which of the various hard disks available for Osborne users is "best."

I will however, without reservation, tell you that the Osborne-labelled 10Mb hard disk (from Datamaster) I have been using the last few weeks is an example of excellence. I will continue to use this hard disk, and the others I already have, and rely on floppies only for transporting files from one system to another and for backing up. Hopefully, future developments will remove the reliance on floppies for backups.

With the specially built carrying case, the traveler should find that taking his Vixen and hard disk on a trip will be no burden. Built like the Samsonite suitcase I carried halfway around the world and solidly padded, the case should survive the cruelest of luggage handlers. I suggest carry-on treatment, as the case will fit under any seat I have ever used or in most overhead compartments — use them.

I am also sure that many new Vixens, bought for office use, will be sporting the Osborne hard disk. Each will be easy to use, easy to take home for that big job with the Monday deadline, and still leave room on the desk for books, drawings, and the like.

The Wizard

Printer Interfacing & Executive & O1 Answers

In which we solve the infamous printer interfacing problem with the Executive, plus other answers.

Brad Baldwin
with John Gaudio

This issue's Wizard column takes on the fundamental printer interfacing problem associated with Osborne Executive computers, as well as a host of other problems for Executive and Osborne 1 owners. Included are answers to disk drive problems, MBASIC file and memory limitations, direct writing to Executive's video, using IBM PC data disks, and other problems.

John Gaudio joins Brad this issue in answering problems regarding dBASE II.

Q: *The IBM PC has a useful resident program that clears the screen. Is there a CLS function with CP/M computers?*

A: Not built-in, but you can create a simple program to execute such a function:

```
; CLS utility
ORG 100h
MVI E,1AH
MVI C,2
CALL 005
RET
```

Q: *What are the screen memory addresses for direct video writing on the Executive? The system crashes when I use the Osborne 1 addresses via an MBASIC graphics program.*

A: As you discovered, video addresses between the two computers are unique to one another, an understandable condition due to differences in memory size, operating system and internal architecture.

The Executive's 4K of memory-mapped video resides in Bank 7 RAM beginning with address C000h and ending at CFFFh. An additional 4K of video control attributes sits on top of that location starting at D000h and ending at

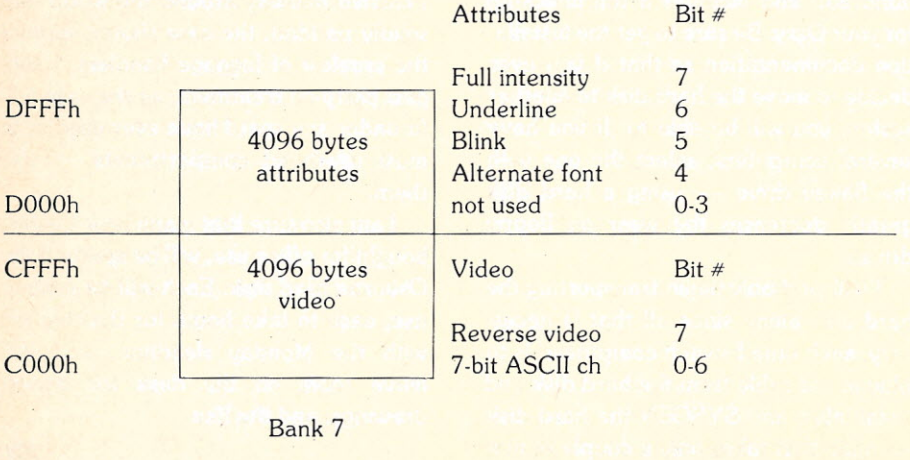

Figure 1. *Executive video memory addresses.*

	Video Memory Addresses			
Executive Video			Osborne 1	
1	C000	49152	F000	61440
2	C080	49280	F080	61568
3	C100	49408	F100	61696
4	C180	49536	F180	61824
5	C200	49664	F200	61952
6	C280	49792	F280	62080
7	C300	49920	F300	62208
8	C380	50048	F380	62336
9	C400	50176	F400	62464
10	C480	50304	F480	62592
11	C500	50432	F500	62720
12	C580	50560	F580	62848
13	C600	50688	F600	62976
14	C680	50816	F680	63104
15	C700	50944	F700	63232
16	C780	51072	F780	63360
17	C800	51200	F800	63488
18	C880	51328	F880	63616
19	C900	51456	F900	63744
20	C980	51584	F980	63872
21	CA00	51712	FA00	64000
22	CA80	51840	FA80	64128
23	CB00	51968	FB00	64256
24	CB80	52096	FB80	64384

Figure 2. *First column video screen addresses for the Osborne 1 and Executive.*

```
 10 ' Executive bank-switching routine to call
 20 ' video RAM at Port 7.
 30 '
 40 SAVEIT = INP(0)                    'Read and store
 50 A = SAVEIT OR 64                   'Turn on the Bank 7 bit
 60 OUT 0,A                            'Out, damned byte!
 70 '
 80 '**************
 90 FOR N = 0 TO 79                    ' Let's test it...
100 POKE (50560+N),33
110 NEXT N
120 '**************
130 '
140 OUT 0,SAVEIT                      'Restore Port 0
```

Program notes:

- INP reads a byte from a port.
- The OR command is a Boolean logical operator that can turn bits on. (For example, 00000011 ORed with 11000000 produces 11000011.) Decimal 64 is the equivalent to 01000000 binary and is ORed with whatever SAVEIT contains. Since higher-order bits have greater priority than lower-order in the Executive bank-switching scheme, video memory overlays (shadows) all banks below it.

Figure 3. *Memory bank-switching in the Executive.*

DFFFh. A string of twelve bits are associated with each character that appears on the screen: eight bits to handle the ASCII character code (the high order bit is reverse video) and four bits for the video attribute RAM. A pictorial representation is shown in Figure 1.

Although video memory is a 128-by-32 matrix, you write just to an 80-by-24 matrix, corresponding to the actual screen display. To help in your graphics coding, Figure 2 lists the hex and decimal addresses to the first character of a screen line. (You could just as easily write a program that prints out all 1,920 video addresses [80 x 24] thus providing an immediate reference to each screen cell.) Also included are the Osborne 1 addresses.

Because video RAM is held in Bank 7, writing to it is not as easy as with the Osborne 1 where memory addresses are poked with whatever character desired. With the Executive, users must follow these basic steps:

1) Read the bank byte at Port 0; 2) tuck it away in a safe place for later use; 3) turn on Bank 7 via a mask on the bank byte bit 6 (numbering 0-7); 4) send the revised byte back out to port 0; 5) write your video program, which now calls Bank 7 video RAM; 6) recall the original bank byte; and 7) send it back home to port 0.

Don't despair — bank-switching, as it's called, is actually quite easy to do. I've provided Figures 3 and 4 as programming examples written in both MBASIC and assembler that illustrate the process much better than words. For

```
; Executive bank-switching routines
                        ;Bank 7 ON routine
IN      0               ;Port 0 into A
STA     MYSTACK         ;Tuck it away
ORI     01000000b       ;OR it with 64d
OUT     0               ;Bank-switch

                        ;your video driver

LDA     MYSTACK         ;Restore machine
                        port 0
OUT     0
        RET
MYSTACK DS 1            ;storage
        END
```

Figure 4. *Executive bank-switching routines.*

additional information on memory layout, memory-mapped video and memory priority, please review the *Executive Reference Guide* under the section titled "System Specifications."

Q: *How can I get my Transtar 130 printer to print bi-directionally?*

A: In the August '83 issue of *The Portable Companion*, I wrote that the Transtar 130 is Diablo 1610/1620 compatible. Unless the Transtar folks have changed the ROM coding, this printer driver setup should still hold true. Incidentally, the Diablo driver also provides super/subscripting, 1/120th offset boldfacing, micro-justification and full incremental horizontal/vertical motion capabilities.

Q: *I have two questions: 1) Can you tell me whether or not the IBM version of "Roots II," a genealogical program, will work on the Vixen with the aid of Media Master? 2) The company that produces Roots II also sells a "Family Roots" program for use on CP/M-based machines. Am I safe in believing that any CP/M program can be used on the Vixen with the aid of Media Master?*

A: Media Master is a highly useful disk formatter program that enables users to swap disks back and forth between different systems. It is not, however, a program that can translate and convert executable program code from one operating system/CPU environment to another — an almost impossible task. Think about the differences between the machines: 16-bit vs. 8-bit; PC-DOS vs. CP/M; 8088 vs. 8080, and so on.

Media Master is used only for transferring *data* files between systems with incompatible *disk formats*, such as sending IBM Lotus 1-2-3 data files to a Vixen SuperCalc II spreadsheet or vice versa (using, of course, the appropriate Data Interchange Formatter [DIF] program on both sides). Data can also be delivered between different families of computers via modem. or directly connected cables.

The answer to your second question is "maybe yes." Gale Rhoades, Executive Director of FOG, reviewed the Vixen for the Nov/Dec 1984 issue of *The Portable Companion* and found all of her Osborne 1 software compatible with the Vixen, except for a few rogue packages that write to specific hardware or software addresses. We'll try and compile a complete list next time around, including Executive and public domain software compatibility with the Vixen.

Q: *Is there any way I can inexpensively modify my Osborne 1 to run IBM programs and also give me 256K? My company, a life insurance organization, is moving into the IBM arena and will no longer provide us with CP/M software to run insurance illustrations. I am reluctant to give up my trusty Osborne and hope there is an alternative.*

A: Civil disobedience! Organize an immediate protest movement against such a blasphemous, devoutly horrible state of affairs! Engage in a life insurance tea party, throwing the scoundrel IBMs into the brink! Those are your alternatives. Or were you asking what hope there is there for converting the Osborne into an 8088-based machines thus running any MS-DOS based software?

In the previous question, we said that IBM programs cannot simply plug into a foreign system and run, proper disk format or not. However, SWP Microproducts offers a hardware solution to Osborne 1 owners that provides 8088 co-processing and 256K memory. SWP's phone number is 817-468-1181. Please see the review of CO-POWER-88 in this issue for further information.

Q: *(From several dozen users.) I recently purchased an Osborne Executive computer and an Whiz-Bang-Super-Duper centronics-parallel printer. I guess you know what's coming up next — I need help in interfacing them. The dealers in the area were of no help and I've struck out with my home-brewed cable. Please find enclosed the pin assignments and listing of signals for the printer.*

A: Welcome all to the Osborne family. And welcome to the wide, wonderful world of printer interfacing.

To help you along, I can offer three rules to guide you in your quest to properly interface the Executive parallel port:

1) IGNORE OCC'S CENTRONICS INTERFACE PIN-OUT ASSIGNMENT shown on page 445 in the *Executive Reference Manual*!

2) IGNORE OCC'S CENTRONICS INTERFACE PIN-OUT ASSIGNMENT shown on page 210 in Volume 2, "Working With Text and Spreadsheets."

3) See 1 & 2 above.

Executive IEEE to Centronics Cable

1	———	2 Data 1
2	———	3 Data 2
3	———	4 Data 3
4	———	5 Data 4
13	———	6 Data 5
14	———	7 Data 6
15	———	8 Data 7
16	———	9 Data 8
18	———	19 Signal ground
6	———	1 Strobe
19	———	20 Signal ground
20	———	21 Signal ground
8	———	11 Busy
21	———	22 Signal ground
22	———	23 Signal ground
10	———	13 Select
23	———	24 Signal ground
	———	leftover lines
	———	on the cable

Cable type: 26-wire flat ribbon.

A blank wire separates all data bits and multiple grounds shield strobe, busy and select lines. Although this design reduces the potential for impedance and inductance build-up, play it safe and keep the cable under 10 feet long.

Figure 5. *The correct cable design for interfacing printers to Osborne Executive computers.*

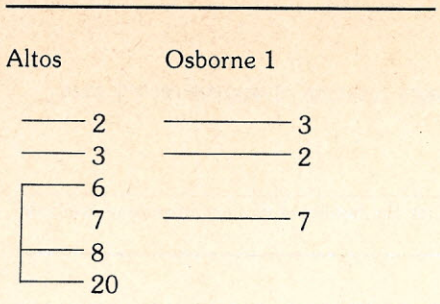

Figure 6. *RS232C pin connections for cabling an Osborne 1 to an Altos 8000 computer.*

So exasperating is the problem of incorrectly documented Executive pin-outs, that $1^1/_2$ years ago or so the *San Jose Mercury News* ran a half page article chronicling the printer interfacing problems of one Osborne Executive user. In closing the article, they listed the correct pin-outs for all of San Jose and Silicon Valley to see. Amazing stuff.

A confession: I wrote the "Connecting a Printer" section in Volume 2 and also designed the cable pin-out that Rule 2 says to ignore. In my defense, however, I wrote that section for the *Osborne 1*, not the Executive. Unfortunately, OCC's documentation manager wrongly incorporated the material, without my knowledge, into the Executive manual. As a result, the cable pin-out you see in that manual is only correct for the Osborne 1. As for the pin-out in the *Executive Reference Manual*, it's totally incoherent — who knows where *it* came from. Sadly, OCC has yet to correct the manuals with an errata sheet update.

At any rate, the correct cable design (which first appeared in a piece I wrote for the August '83 issue of *The Portable Companion*) is shown in Figure 5.

Q: *I wish to direct connect my Osborne 1 to an Altos 8000 8-inch disk drive CP/M-based system. Can you provide any suggestions on how such a task might be accomplished?*

A: First, we need to determine if the Altos is acting as a DTE or DCE device. The Altos schematics show the transmitted data signal entering the RS232C 1489 quad line receiver chip and the receive data signal exiting an RS232C 1488 quad line driver. This backward designation clues us that the Altos is operating as a DCE device (RS232 signal direction is referenced from the DTE's point of view) — the same as the Osborne 1. We now have our first pin designations: pins 2 and 3 must be flopped between computers. Pin 7 is signal ground, so bring it on over to pin 7 on Ozzie.

To indicate equipment readiness, pull the Data Terminal Ready (DTR) and Data Set Ready (DSR) lines high using the positive voltage found on line 8. It's not necessary to tie those lines together on the Osborne side. We tested the cable and it works fine, even at speeds up to 19.2k (a baud rate generator installed in the Osborne 1 juices up the system).

You can use most any communications package to perform the actual data transfer, such as Modem7 (public domain). AMCALL, however, will not work with this application due because it calls the 9-pin Osborne 1 modem port, not the RS232 port.

Q: *Help! I'm in Papua New Guinea doing linguistics work and received a new Osborne Executive at the end of September '84. It worked beautifully until today. I turned the machine on and received the* `Insert Disk in Drive A` *message as usual. Only this time, it didn't load the system. Instead, it gave me a* `BOOT ERROR – PRESS RETURN TO TRY AGAIN` *error message. I opened the machine and checked every connector, re-seated all the chips and switched drives (noting jumpers and resistors) all to no avail. I'm in Papua New Guinea and I really can't send the machine out of the country unaccompanied. The nearest service center is several thousand miles away, I'm sure. Any help would be most appreciated.*

A: Your disk read problem is most likely due to a faulty 1793 floppy disk controller or another, less well-known chip called the 9216 floppy disk data separator (or read data separator). This latter chip, although small (just 8 pins), is quite complex and presents a first line-of-attack on data coming in from the floppy disk. I strongly suspect, with the error you describe, the data separator as the part you need to replace. Here's why.

Single-density (FM) requires that each bit written to the disk be bounded by a clock pulse — the leading edge of the clock pulse defines the boundary of each bit cell. MFM, or double-density recording, doubles the space written to the disk by eliminating all clock pulses for 1s and all clock pulses for 0s bounded by 1s. In essence, the 1 bit becomes a self-clocking signal. Clock pulses are written only where there are two or more 0 bits in a row. As a result, MFM recording is twice the density to that of FM recording.

The 1793 floppy disk controller, however, must be presented with a single stream of data — minus all clock pulses. That's where our friend the 9216 comes in. His task is to: 1) accept and greet data coming in from the disk with a clock provided by the host system; 2) interpret if the data is single- or double-density; 3) separate clock pulses from data bits; and finally 4) output the separated data stream to the 1793 on one line and the separated clock on another properly synchronized line.

By holding certain 9216 lines high during a disk boot, I induced several `BOOT ERROR` messages identical to yours. I also produced a `BOOT ERROR` message by holding different lines low. A lot goes on in this heat-sensitive little fella, all of which can produce a `BOOT ERROR` on your Executive in warmer climates. So before you pull the 1793, swap-out the disk data separator first to see if it is performing properly.

To find the 9216, look for it at the right of the beeper on the Executive motherboard — the chip is socketed so it's easily replaceable. The *Executive Technical Manual* lists the signals in the correct position but shows the wrong pin numbers. The correct pin assignment is shown in Figure 7.

By the way, to check out the other drive on a boot-up, you don't need to physically swap drives. Depress the Tab key instead of Return — you'll see your B drive LED light up as it boots-up whatever disk is loaded there. This trick is similar in concept to the Osborne 1 con-

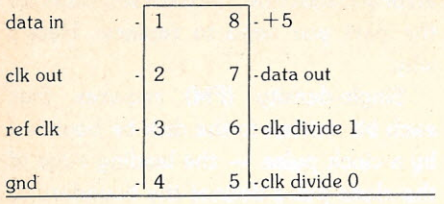

Figure 7. *The 9216 floppy disk data separator pin assignments.*

```
set console off
set echo off
set talk off
set print on
      ? 'This is a normally printed line.'
      ? chr(27)+chr(45)+chr(1)
      ?? 'An underlined line.'
      ? chr(27)+chr(64)
      ?? 'No underlining.
set print off
set console on
set talk on
```

Figure 9. *dBASE II program that sends print control codes to an Epson printer.*

```
A)MBASIC filename /F: files open /M:highest memory location /S:maximum record size
```

Figure 8. *Format for command to initialize MBASIC for the number of files and amount of available memory.*

```
; Routine to turn on the PIA's TX CLOCK SELECT
; and RX CLOCK SELECT lines, enabling TX CLK and
; RX CLK.
org 100h
in  02h
ori 00110000b
out 02h
    ret
    end

; Routine to turn off TX CLOCK SELECT
; and RX CLOCK SELECT lines, disabling
; TX CLK and RX CLK (the normal boot-up
; default condition).
org 100h
in  02h
ani 11001111b
out 02h
    ret
    end
```

Figure 10. *Sample control routines for programming the Osborne Executive's internal controller 6821 PIA.*

trol shift function. The B drive becomes your A and your A becomes your B.

Q: *According to my manual, MBASIC should permit a program to have up to 15 files open at any one time. If, however, I try to assign a number above 3 I get an error message — bad file number. Is there any way to get the additional file numbers functional on my machine? I need more than three files open at one time.*

A: To save memory, MBASIC sets limits to certain functions requiring the user to initialize MBASIC for the needed options. The initialization format is shown in Figure 8.

Some quick notes: Each file data block requires 166 bytes of memory; the highest memory location is set all the way up to the start of FDOS; the default random file record size is 128 bytes; numbers can be written in decimal, octal (precede with `&O` as in "and oh"), or hexadecimal (precede with `&H`).

Q: *I'm experiencing a certain degree of incompatibility between my Epson and dBASE II package. For example, if I turn the underline bit on:*

`? chr(27)+chr(45)+chr(1)`

I cannot turn it off with:

`? chr(27)+chr(45)+chr(0)`

dBASE II is completely ignoring the `chr(0)` *I'm sending it. Several other special printing commands require a closing* `0` *so this problem is really quite annoying.*

A: dBASE II is prejudiced. It despises `chr(0)`'s and will not acknowledge any attempt to send a `chr(0)` to the printer — I tried all sorts of tricks but to no avail. I can only offer the solution shown in Figure 9 as an answer to the problem. On the Epson with Graftrax, `chr(64)` resets all special modes to power up state thus clearing out the underlining. However, it also clears out Top of Form which may or may not be a problem to your application.

The varying number of question marks are significant in that they prevent blank lines from printing. Try it with only one question mark per line to see what I mean.

Q: *I'm looking for information on the use of the Executive modem port's Transmit Modem Clock (pin 15), Receive Modem Clock (pin 17) and Transmit Common Clock (pin 24). I have an application that requires disabling the Executive's*

common communication clock and inputting my own clock through pins 15 and 17 to the Executive Z80A Serial Input/Output device. At other times I want to use the baud rate clock generated internally by the Executive's 8253 Programmable Timer IC to clock in my data via normal RS232 functions. In a separate application, I also have an old device that needs a 300 baud clock sent to it from the computer on pin 24. Any advice on how any of this might be accomplished?

A: The key chip here is the internal controller 6821 PIA (not to be confused with the parallel port 6821 PIA). We can program it to do exactly what you want, which is to: 1) toggle on a switch that can accept transmit and receive clocks generated by external devices into the Executive's Z80A SIO/2, while at the same time disable the internal clock; and 2) toggle off the same switch, disconnecting lines 15 and 7 and re-establishing the common communication clock into the Z80 SIO. The actual switching is handled by a CMOS Quad bilateral switch (4066), which is a bank of four externally controlled gates.

See Figure 10 for sample controlling programs. The select lines are located at bits 5 & 4 (beginning with a zero low-order bit designation). Via a write to machine port 2, an ORI mask turns them on and the ANI mask turns them off.

The following questions were answered by John Gaudio.

Q: *When printing information from dBASE II the printer sometimes goes crazy! It seems to happen when the field I'm printing contains semicolons. Why does dBASE II do this, and how can I get around it?*

A: The semicolon is treated as a special print code by dBASE II. The command: ? CENTER THIS; will appear shifted toward the center of the screen because of the semicolon. Similarly, ? CENTER; EACH; WORD; SORT OF; will yield something like:

CENTER
EACH
WORD
SORT OF

This feature of dBASE II can be disabled. If you're running version 2.4 or or later, the command SET RAW ON turns off this semicolon centering, and the command SET RAW OFF brings it back. Once you SET RAW ON you'll find that even your semicolons appear just as you expected them to.

This solves the problem for those who have upgraded their dBASE II, but what about the rest of us? Osborne Computer Corporation supplied version 2.3b, and that version does not support the SET RAW ON command. Well it turns out that 2.3b is patchable, and can be patched directly from inside a dBASE II command file. Try putting POKE 3353, 255 into your command file to disable the semicolon centering, and POKE 3353, 59 to bring that feature back. Disabling semicolon centering should clear up the problems you describe, and return control of your printer to you.

Q: *I have an RS-232 digitizer and want to make it work with my Osborne 1 and an MBASIC program I'm writing. How do I get the information into the program from the RS-232 port? The digitizer sends a string of ASCII characters followed by a carriage return. For example, it might send* 22.745, 04.622↵ *(the ↵ symbol is for Return) to represent an X value of 22.745 inches and a Y value of 4.622 inches when I press the send button. Can this be done with my Osborne 1?*

A: Yes. MBASIC normally receives information from, and sends information to your computer's console, in most cases the keyboard and screen respectively. However, under CP/M it's possible to change the console from physical device TTY, the keyboard and screen on the Osborne 1, to physical device CRT, the RS-232 printer port. In fact, by plugging a standard terminal into your RS-232 port, and telling the Osborne 1 to use that port as the console, you can actually run your computer from the terminal. So how does all this help you?

It's possible under MBASIC to change the console back and forth so that input comes to the program from either the TTY, (keyboard) or the CRT (RS-232 port).

Consider the program in Figure 11. Line 10 simply stores your original I/O byte to insure that it can be properly restored. Lines 100 and 110 represent your main program. Here 100 simply calls the subroutine, 110 displays the values passed back from that subroutine, and 120 ends the program. Lines 1010 through 1050 make up the routine to be called whenever you need a new set of x,y coordinates.

Continued on page 24

```
10 LET BYTE = PEEK (3)

100 GOSUB 1010
110 PRINT X,Y
120 GOTO 10000

1010 PRINT ''PRESS BUTTON ON DIGITIZER TO INPUT A VALUE''
1020 POKE 3, INT(BYTE/4)*4 +1
1030 INPUT X,Y
1040 POKE 3, BYTE
1050 RETURN

10000 END
```

Figure 11. *Making an RS-232 digitizer work with an Osborne 1 using an MBASIC program.*

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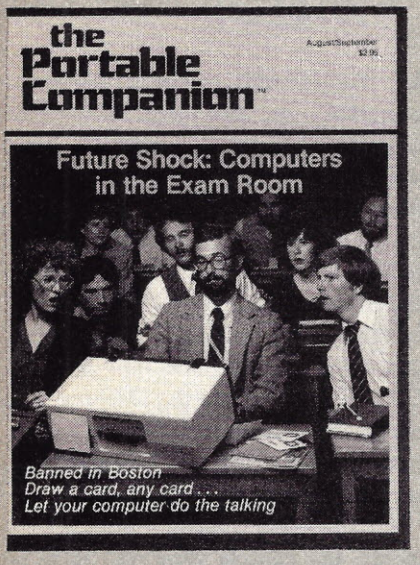

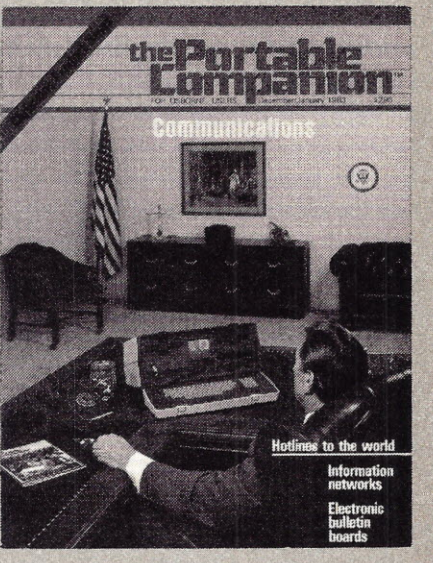

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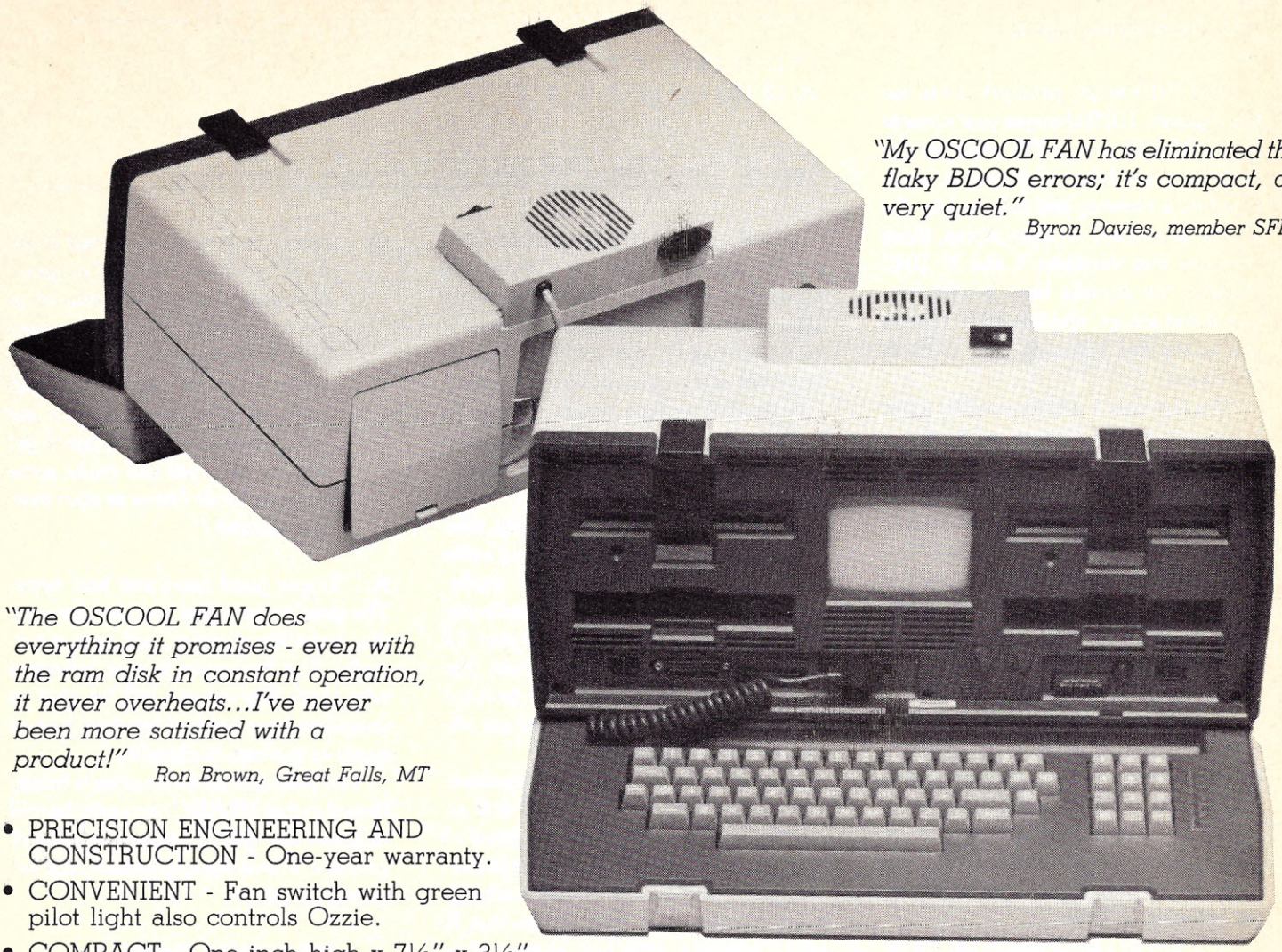

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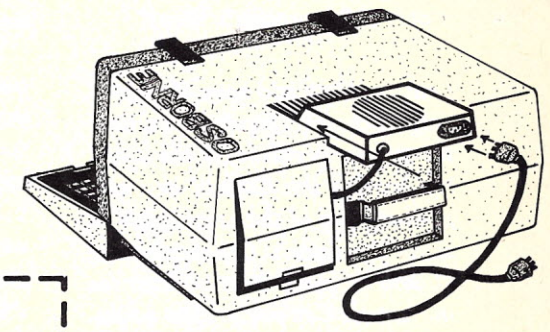

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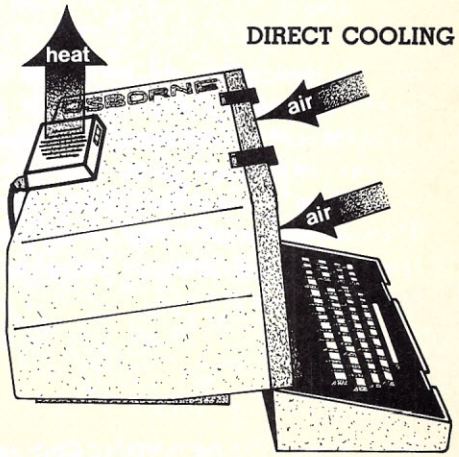

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Wizard continued from page 21

Line 1010 simply prompts you to use the digitizer. 1020 changes your console to the RS-232 port. 1030 waits for the digitizer to send the two numbers, separated by a comma, and followed by the return character. It then stores those numbers into variables X and Y. 1040 changes the console back to the keyboard and screen, and line 1070 returns you to the line following your GOSUB statement.

The Osborne 1 will be sending a few things out to the digitizer while this is happening, so if that creates a problem you'll have to cut the line connected to pin three on the O1 side of your RS-232 cable. Remember also that you may have to connect either pin 3 or pin 2 of the digitizer to pin 2 on the Osborne, depending upon the way your digitizer is set up. You will also have to connect pin 7 on the digitizer to pin 7 of the O1.

Of course you still have to write your own program to do something with these numbers. Use your code to replace lines 100 through 120 in the example above. Also, don't forget that the baud rate on your Osborne 1 has to match that of the digitizer. Set that baud rate by running the program SETUP.

Now that you know how to get the information from your digitizer into MBASIC, you're ready to start working on your part of the program. Enjoy!

Q: *I am disabled, and have the use of only one hand. This doesn't create too great a problem for me until I try holding the Control key and pressing one of the arrow keys to scroll the screen. Characters like* ^L *and* ^P *are a little difficult for me as well. Can you suggest a solution?*

A: Certainly. Why not try adding a second Control key to the right side of the keyboard? You see pressing the Control key simply connects two wires, the A0 address line, and the D2 data line. These are connected to pins 3 and 12 respectively on the connector inside your keyboard.

19 17 15 13 11 9 7 5 **3** 1
20 18 16 14 **12** 10 8 6 4 2

Figure 12. *The view from the back of the keyboard with number keys along the top.*

Install an additional Control key simply by wiring another key or button across pins 3 and 12. Mount this on the right side of the keyboard, or connect it to a foot switch, and you'll be able to scroll the screen to your hearts content. One word of warning though, this can be a little tricky, so it really should be done by a qualified technician, or serious hardware hacker.

Remove the keyboard assembly, take it apart, and unplug the keyboard cable from the circuit board found inside. Then use an ohm meter or continuity checker to confirm that pins 3 and 12 are electrically connected when the CTRL key is depressed, and isolated when it is not. (See Figure 12 for pin orientation). Mark these pins.

Now find a normally open momentary contact key or button, and drill an appropriate size hole in the top bezel of your keyboard. Before drilling it's important that you make sure there's enough room for your new control key, that it won't interfere with any of the other parts going into that assembly, and that it's mounted in a convenient position for one handed use.

Now mount the new key, and using two pieces of wire wrap wire, connect your new control key to pins 3 and 12. I suggest using a standard wire wrap tool to put two or three wraps around the appropriate posts. Then re-connect the keyboard cable. If you're careful not to put too much wire on the posts you should find there's plenty of room, and the connector fits beautifully over the wire wrap.

If you prefer a foot switch simply substitute a convenient connector, say a female miniature phone jack, for the button, mount it somewhere out of the way, and then build a foot switch with the appropriate mating connector. Either way, you should be able to hold down one of your control keys while pressing any other key on the board.

Q: *Have you ever shot yourself in the foot? I wrote an MBASIC program and saved it with the* P *option in order to "protect" it from other people. Unfortunately I forgot to make a normal copy for myself, and now it's protected from me too! Is there any way for me to get into my program and make some changes, or do I have to start over from scratch?*

A: I have good news and bad news. The good news is that you can see your file, make the changes, and save it normally. The bad news is that everyone who reads this column will be able to unprotect your finished product, just as easily as you can. Such is life.

The MBASIC protect option is fatally flawed in that MBASIC can easily be told to ignore the special protected status of your file. This is done by running the following program:

```
10 FOR P=&H5D4F TO &H5D51
20 POKE P,0
30 NEXT P
```

This program patches the standard version of MBASIC that came with your Osborne computer. It tells MBASIC to ignore the protected status of your file, making it possible to list and save your program even though it was saved with the P option. Here's what you do:

1. Run MBASIC.
2. Run the program above.
3. Clear MBASIC by typing the command **NEW** ↵.
4. Load your file.
5. Save your file normally.
6. Return to the system.

MBASIC seems to run beautifully with this patch, but just to be on the safe side I'd suggest you use the patched version only to unprotect your file and save it. Once this is done you can reload the standard version of Mbasic when you're ready to make your changes.

Q: *Using dBASE II I've created a data base for tracking my accounts receivable, and want to index it by amount in* descending *order. This way I get to the larger accounts first. The field name is* amount. *It's a numeric field nine characters long with 2 places to the right of the decimal point. I have no trouble indexing it in ascending order. How can I do it in descending order?*

A: You say your database contains the field:

```
AMOUNT, N,9,2
```

This field can handle numbers up to 999,999.99. Since this is the largest number you can ever store in amount, we'll subtract the actual value of amount from this maximum. We'll then index on the difference. For the following example let's assume you're using a database called AR.DBF. In this case you build the index by typing:

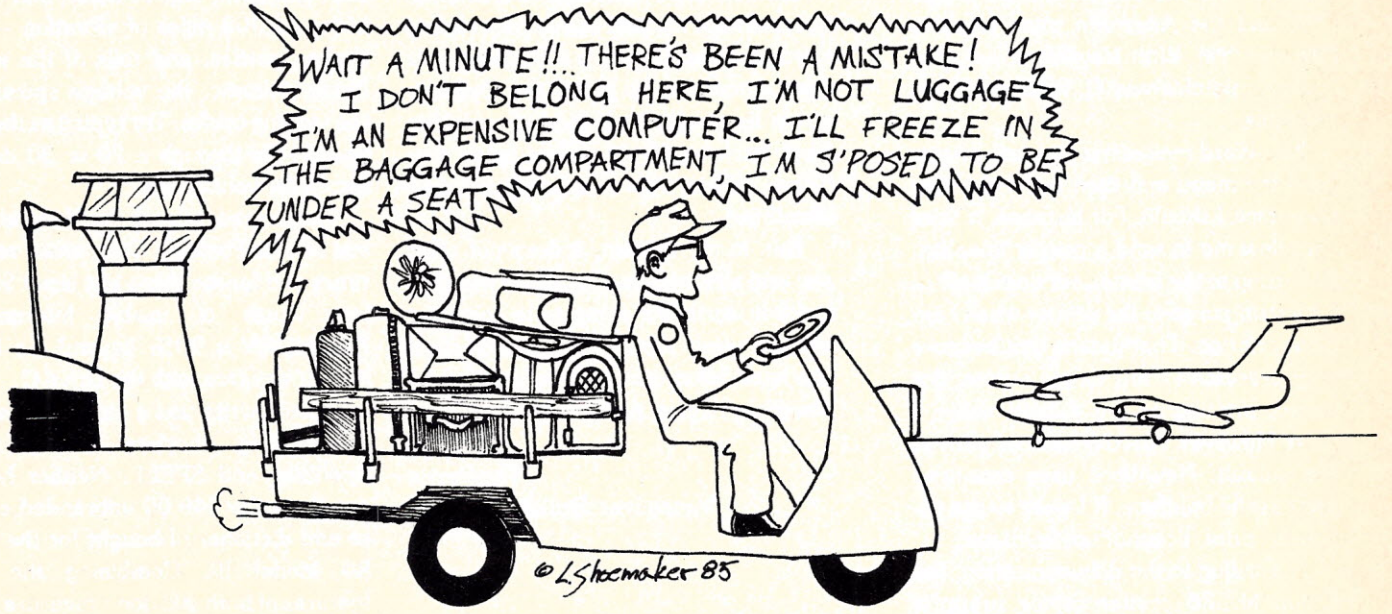
```
USE AR ↵
INDEX ON 999999.99-AMOUNT to ARI ↵
```

We're indexing now on a difference that gets larger as the amount gets smaller. Therefore, even though we're actually indexing in ascending order on the difference, the effect is an index in descending order on amount. The rule in general is:

To index on an amount in descending order, simply calculate the maximum possible value, then index on that maximum minus the amount.

Good luck on your accounts receivable.

John Gaudio specializes in solving problems for Osborne users through both his bimonthly newsletter, the SURVIVOR'S GUIDE, *and a telephone help service known as the Survivor's Life Line. Please contact him at (303) 934-1407 for more information.*



Letters continued from page 8

could get inverse video on the normal (for me) 80 column screen? How about it.

Secondly, I must take issue with Cheryl Peterson's gushing review of NewWord on page 7 of the July issue.

While I agree with her that the NewWord installation program is better than the one that comes with WordStar 2.26 or 3.0, it is not as good as the installation program that now comes with WordStar 3.3 and for Osborne owners, the WordStar upgrade is a much better deal than NewWord.

Serious drawbacks of NewWord that she doesn't mention include:

1. NewWord does not allow you to simultaneously edit and print as a properly installed WordStar does. It's not that NewWord just needs to be properly installed in order to print spool. It is incapable of it.

2. NewWord does not have the same level of printer support as does WordStar. If you've got a daisy wheel printer, this isn't as important, but if you like to get maximum performance out of a good dot matrix unit, like I do, this is important.

Specifically, with WordStar I can patch the four user patch keys (^PQ, ^PW, ^PE and ^PR) the ribbon change toggle (^PY) and the Alternate pitch function (^PA and ^PN). With NewWord, only the four user patch areas (Q, W, E and R) are available.

NewWord makes me pick my printer from the menu and then use it the way they think I should. For instance, it does not allow me to send a printer initialization string to the printer nor does it allow for a string to go to the printer when I am done printing. That means that because they presume I want to use normal dot matrix printing as my default value, I must. However, I used enhanced print as the default. NewWord uses enhanced print as the boldface. If I want to use enhanced print, I cannot use boldface.

According to the documentation, the Epson MX-80 printer driver supports italics with the ^PY ribbon change character. In fact it does not.

The manual also says it supports microspace justification on the Epson MX and FX printers. This it does, but it does so by stopping after every word, backing up and taking a new run at the next word. This slows the printer down to about 20 characters per second or slower and undoubtedly puts more wear on the printer mechanics with every start, stop and change in direction.

NewWord does not allow me to patch the super- and subscript areas to take advantage of the super- and subscripting which my dot matrix printer can do. It will only do super- and subscripts by carriage rolls.

3. NewWord requires more memory than does WordStar, so much so that I cannot run NewWord with Smartkey. Since I find the utility of Smartkey far outweighs any minor advantages I might gain with NewWord, that alone disqualifies it. It also means that you cannot use Smartkey and Smartprint to make up for the inadequacies of NewWord's printer patching.

4. NewWord does not offer the column block move function offered in WordStar 3.0 and above.

5. The Osborne delete key (^-) is disabled.

NewWord is *not* a bad program. I have found no bugs in it at all. However, it is not any better than WordStar 3.3 and really no better than 2.26 except in the area of installation.

It does have excellent documentation, perhaps the best I have seen among word processors and it is a lot cheaper. It does automatically patch the Osborne arrow keys when it is loaded and puts them back to CP/M values when it is turned off (but then so does my patched WordStar).

But, in my opinion, it does not offer any real advantages over WordStar that make it worth the expense to someone already using WordStar, particularly if you have taken the time to patch your WordStar to your particular needs.

Tim Perrin
Vancouver, British Columbia

Shake, Rattle & Roll

There are those of us out here in the computer world who simply want to use them, Osbornes included. We simply want to process words and spreadsheets without all the claptrap of pips, copies, fixes, and other confusing information that keeps coming in the mail.

The worst thing about buying a computer is getting the printer to work with it. It seems that most dealers cannot seem to adapt to anything but a package deal. I have found Okidata (I have the Okidata 92) very helpful with their instructions, even if none of the three I've used has been fully correct...

When someone tries to sell me something for the Osborne 1, I more or less assume that it will do what is advertised without having first to copy, patch, install, pip, format, era, and what have after reading and re-reading the manual for several hours before hand.

Maybe the Vixen is the solution but I sold my TRS-80 Model III because of the attached keyboard, and it was a bit much to carry aboard ship. With fixed lighting and non-adjustable working surfaces, the Vixen gets a pass, as much as I would like the smaller size and weight. I could care less the operating system, as long as it works under adverse conditions — A nine cylinder diesel, 30,000 SHP, high speed (21 knots) container vessel, on the North Atlantic, during the winter.

My Osborne 1 has been to the Middle East and back, 30,000 miles, and is now in for 60,000 miles of vibration — the shakes, rattles, and rolls of the winter North Atlantic, the voltage spikes and the varying cycles. Try typing as the keyboard rolls through a 20 or 30 degree arc under your hands!

I have read through the November issue of *The Portable Companion* several times and for me there just is not $5 dollars worth of usable information. *FOGHORN* is 90% beyond me but at least it was free with the Drive C.

I could write you a nice nasty article on spelling checker, I have both SpellStar and SPELL. Neither hold a candle to the $40.00 unbranded checker and dictionary I bought for the TRS-80 Model III. Combining the best features of both still don't measure up to the first one.

Jim Larsen
Arden, DE

Continued on page 30

FOG

The **F**IRST **O**SBORNE **G**ROUP (**FOG**) has been formed as a User's Group for persons using or interested in portable computers and/or the CP/M disk operating system with related software. In December of 1984, there were over 15,000 members from around the world. Most attend local group meetings at over 300 locations.

Computer systems owned or used by members include the Osborne 1 (single and double density), the Osborne Executive 1, all models of the Morrow MicroDecision, the Zorba, all models of the KayPro, several MicroMates, and many more. Special interest groups organized to augment a network of local group meetings include dBase II, Ham radio operators, Personal Pearl.

FOG was started in October of 1981 by a small band of early buyers of the Osborne 1. The primary purpose was to organize a library of public domain software to run on the Osborne 1. A newsletter was quickly started to act as a focal point for the group's activities. The large number of excellent contributions to both the library and the newsletter has produced a library of 230 disks (as of December, 1984) and a nicely typeset (70 or more pages) monthly publication. All back issues of the ***FOGHORN*** are available for a nominal fee which includes shipping in the U.S. Contributions are currently being solicited for bulletin board systems in addition to the thirty currently in operation. Most systems accept both 300 baud and 1200 baud. Phone numbers for the first systems are:

System #1 — Daly City, CA	(415) 755-2030	24hrs/7 days
System #2 — Vancouver, BC	(604) 596-0314	24hrs/7 days
System #3 — Daly City, CA	(415) 992-8542	24hrs/7 days

Each of these systems will have a file listing phone numbers for the other systems.

While the meetings are organized on a local basis, over 130 of these local groups have joined the FOG network, thus increasing the sharing of information, tips, problems and so on. Those local groups which opt to formally join the FOG network receive a portion of local member dues to assist with the cost of maintaining a local copy of the disk library.

The FOG library is currently maintained on the Osborne 1 single density format but separate libraries are being established for the other computer formats. The library files are carefully screened and divided into category types (utilities, games, applications, and computer languages are the four major categories). Programs which contain run or other errors are put into the hacker section so interested members can fix them and resubmit for inclusion in the correct section. Items which do not fit into one of these categories are in the miscellaneous section. A catalog and descriptions of all the discs is maintained in the library section.

Dues in FOG are $24.00 per year. This entitles each member to a copy of the ***FOGHORN*** each month as well as access to the disk library. Local group meetings are open to the public without charge although access to the disk library is restricted to the membership. The FOG library contains only public domain software. Piracy (the copying of proprietary software) is strongly condemned.

In the United States, the ***FOGHORN*** is normally mailed by non-profit bulk mail. (FOG is a corporation in the state of California and has obtained its non-profit, tax exempt status from both the state and federal governments.) For those members who live out of the country or who prefer first class delivery of their ***FOGHORN***, additional postage must be added to the annual dues. See the chart below for details.

If you are interested in joining a self-help organization to increase you knowledge and the use of your computer, use the application below (or a copy of it). Generally, memberships received at the FOG office prior to the 15th of the month are entered in time to receive the next month's ***FOGHORN***.

If you know of a local group which might be interested in joining the FOG network, please send all details (meeting dates and places, officers, and how interested local computer owners can join). We will send you an information packet on becoming an Affiliated Member Organization.

For your records, the address of FOG is P. O. Box 3474, Daly City, CA, 94015-0474. Please allow at least two months for the arrival of your first ***FOGHORN*** since bulk mail can take as much as nine weeks. (The post office says that it should only take about three weeks for non-profit bulk mail but some members on the East Coast have experienced longer delays.) A membership card will be processed within two weeks of the receipt of your dues.

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Beginner's Tips

Quick and Easy WordStar

Making WordStar operations fast and simple by defining some of the Osborne's function keys.

Diane Paige Thompson, Ph.D.

When my college purchased one hundred Osbornes in the Spring of 1983, I decided to learn WordStar to use in teaching composition. At first I felt like Alice in Wonderland, where the rules were as elusive as the ever disappearing Cheshire Cat. As I worked my way through the manual, my constant cry was "help!" Luckily, my son was a programmer and often could answer my desperate questions such as, why did my sentence suddenly disappear, or why did all the lines double, or where is my file?

Through all this, I formed one firm idea — this must be made simple, or my students will never be able to use it. I wanted to develop a way to use WordStar which would be as easy to use as a typewriter, and present no further obstacles to a student who already had difficulty writing. I observed my own processes of writing on the word processor and decided which were the minimal commands I needed to write, edit and print.

I developed a system with which you could type in text, delete and insert material, shift blocks of text around, raise and lower text on the screen, reform a paragraph, save text, and print it. I did not want the Control commands mixed into the typing keyboard, since this leads to errors cause by accidentally striking the wrong keys in combination with the Control key. I set the margins at 52 columns, so that writers can see all of their text without scrolling, and eliminated the help menu, since beginners are more confused than helped by such information.

I have been using this modified version of WordStar for classroom teaching for a year now. It is so simple that students are composing at the word processor from the first hour they use it. I also use this "baby WordStar," as I like to call it, for all of my personal writing, since it is adequate for most writing needs, and far easier to use than the full WordStar. Since the modifications consist of programming the function keys, the full WordStar is not impaired, and can be used whenever desired.

First I present the actual instructions you would give a complete novice for using my "quick and easy" function-key defined WordStar. At the end of this article are the instructions to set up the function keys (written for someone who knows a little about SETUP), and a template to use with your numeric keypad.

Starting Up WordStar

Turn on your computer (the switch is in the door at the back). Turn on your monitor if you are using one.

You will be using two disks, one labeled "WordStar" and the other a blank disk of your own. Each disk is kept in a protective folder and consists of a tough paper envelope containing the actual disk itself, which is exposed by an oval slot in the envelope. Do *not* touch the disk surface where it is exposed, or you will destroy the disk. Do not bend or twist the disk, and always replace it in its folder when it is not in the drive.

Hold the disk so the label is on top when you insert it in the drive. The left drive is the "A" drive, and the one on the right is the "B" drive. Each drive has a fold-down door which must be shut when the disk is in the drive.

Insert the WORDSTAR disk in drive A.

Insert your disk in drive B.

Close the drive doors.

Press the Return key (the on marked "RETURN" which we show as the ↵ symbol) and wait until the red light goes off. Wait until the light goes off each time before you press the next keys.

Type an L, then B: ↵ (↵ is the Return key).

Type a D, then type NEW.FIL ↵.

Press the Control key (this is the key labeled "CTRL"), and while this key is held down, also press 0 (zero). You can use the zero key in the numeric keypad, or the one above the "O" and "P" keys.

When you use the Control key, it shows in the upper left hand corner of your screen as a carat (^) symbol. We use the ^ symbol with another letter or number, as in ^0, to tell you to press Control and 0 at the same time.

Start typing your text. Do not hit the Return key when typing your text, except to start a new paragraph. WordStar will automatically go to the next line when necessary.

Do *not* worry about making mistakes! WordStar makes correcting them easy.

Easy Editing

Use the arrow keys to move the cursor to wherever you want to make a change. Remember, a space is a character, so if you want to move the cursor to various positions on the screen, use the arrow keys. The space bar will create a new space, moving text if necessary to do so.

For the following instructions, try using the numeric keypad to the right of the keyboard, in conjunction with the Control key.

^7 (Control-7) deletes the character just to the left of the cursor.

^8 eliminates the character directly at the cursor.

You can insert characters, words, sentences and more into your text starting wherever you place the cursor. The existing text will move to the right and can easily be reformed afterwards.

^4 will reform your paragraph after you have changed the margins and spaces by editing. Place the cursor under the first character of the paragraph you want to reform, and then press ^4.

^6 pushes text up screen, so you can read ahead.

^9 pushes text down screen, so you can read back.

To move a section or block of text, place the cursor under the first character of the block and press ^1. Then place the cursor one space beyond the last character and press ^2. Finally, place the cursor where you want the block to go and press ^3.

To move the whole block up one line, place the cursor under the first character of the block and press ^7.

To move the whole block down one line, place the cursor under the first character of the block and press Return.

To quit and save your text, press ^5.

Do not turn off the machine until you have removed the disks from the drives and put them back into their protective envelopes.

See accompanying figure for a template to use for your number pad that tells you the operation for each function key.

Numeric Keypad Controls

Delete char at left of cursor 7	Delete char at cursor 8	Read back 9
Reform para 4	Exit and Save 5	Read ahead 6
Start block 1	End block 2	Move block 3
Start key 0	Period	Return key ENTER

Quick and easy WordStar template for the numeric keypad.

Printing

Go to the no-file menu. This is the screen labeled editing no file. You may do this in one of two ways: if you have just finished editing your text, when you press ^5 you will return to the no-file menu; if you have just inserted your disk, follow the directions given to begin WordStar, until you press B: ↵. This will bring you to the no-file menu.

Be sure your printer is turned on and has paper in it. Then press P. The screen will ask you which file to print. Type in the file name, exactly as you see it on the screen, and then press Return. Then WordStar will ask a series of questions. Answer each one by pressing Return. The final Return will activate the printer. Wait until the printer has stopped printing before you continue working on the word processor.

Setting Up the Function Keys

Start the SETUP program by typing SETUP and press Return. You can then type either the drive letter containing the system disk (usually A), or M to get the setup definitions from memory. Your choice depends on whether you want the settings from the

system disk or the ones currently in use in memory.

When the settings appear on the screen, select the programmable function keys by typing E. Then, for each function key number from zero to nine, type the number and then the definition shown below:

```
0:^OR52↵  (Set the right margin at 52 columns.)
  ^OH     (Turn off the hyphen help.)
  ^JHO    (Turn the Help level to off.)
  ^OJ     (Turn off the right margin justification.)
1:^KB     (Start a block of text to be moved.)
2:^KK     (End a block of text to be moved.)
3:^KV     (Move the block of text.)
4:^B      (Reform a paragraph.)
5:^KD     (Exit and save text.)
6:^Z      (Read ahead.)
7:^-      (Delete to left of cursor.)
8:^G      (Delete at cursor.)
9:^W      (Read back.)
```

When you are finished defining these function keys, press Return to go back to the settings menu, then Return again to go to the save menu. Insert the WordStar disk in the B: drive, and type B to save the modified SETUP configuration to the B: drive.

That's it! Now your WordStar disk can be used by novices following the instructions presented above. I hope this article helps you or your trainees become more productive with WordStar.

Diane Paige Thompson, Ph.D., is a professor at the Northern Virginia Community College.

Letters continued from page 26

Metal Messages From The Oracle

We appreciate the favorable and generally accurate coverage of our bulletin board system in the June/July 1984 issue of *The Portable Companion*. I would, however, like to make a few corrections.

First, Tim Gary is the sole author of the bulletin board system, although he and I are joint authors of the accompanying documentation.

Secondly, the name of the product is now Metal Message System, and that name is a trademark of our company, Delphi Data Systems.

Thank you again for the review and for your fine publication.

Byron McKay
Mountain View, CA

Reverse Video & Block Cursor Fix

Many thanks for bringing *The Portable Companion* back to life and providing us with excellent information. My son, James H. Lovell, and I were delighted with Thom Hogan's [article about having a] block cursor, but a bit disappointed to find it only functioned on 52 columns (June/July 1984 issue, p. 24).

I noticed letters from John A. Hansen and Jerry Boyce in the November issue, which I just received, indicating interest in getting help on the subject.

Never fear. James H. Lovell to the rescue!

He has found a "fix" so that the block cursor operates with Screen-Pac 80 and it can be carried out without removing the piggy-back board containing the Screen-Pac 80 electronics.

NOTE! Be careful of static. The HC type chip is a high speed CMOS.

1. Following Thom Hogan's excellent drawings in the July 1984 issue of *The Portable Companion*, pages 25 and 26, note the following changes:

2. The 74LS86 chip, is piggy-backed to chip U2 on the upgrade board. U2 is a 74HCOO chip and is the second chip from the left rear corner of the upgrade board. From the 74LS86 chip, cut off pins 1, 2, 3, 4, 5, 6, 11, 12, and 13. NOTE: THESE PINS ARE NOT THE SAME ONES LISTED IN THOM HOGAN'S ARTICLE!

3. Carefully cut pin 8 of U2 (74HCOO) at the board and on the chip.

4. Place chip 74LS86 on top of U2 (74HCOO) so that pin 7 of the piggy-back contacts pin 7 of U2. Solder these two pins.

5. Connect pin 8 of the piggy-back 74LS86 to the board where pin 8 of U2 was cut. You may be able to urge pin 8 into the board by applying heat (solder iron) to the board where pin 8 of U2 was connected.

6. Solder pins 9, 10 and 14 of 74LS86 to pins 9, 10 and 14 of U2 (74HCOO). In summary, pins 7, 9, 10 and 14 of 74LS86 are soldered to pins 7, 9, 10 and 14 of 74HCOO and pin 8 of 74LS86 replaces pin 8 of 74HCOO.

7. Remove pin 1 of U23, 74HC74, from the board either by softening the solder or cutting it at the board. U23 is the fourth chip from the right end of the board on the front edge and is immediately to the right of the cable header for the flat cable originating on the main logic board. Lift pin 1 away from the board. Solder to it a short length of wire-wrap wire, or other suitably insulated wire from which the insulations on the ends have been stripped. Carry the free end of this wire over the top of U23 and solder it to pin 14 of U23.

8. That's it. After assembling the computer, you should have a block cursor in reverse video that functions with the Screen-Pac 80 upgrade.

James S. Lovell
Charleston, WV

Drive C: Review

The review of the Drive C: unit in the April issue by Don Krantz is out to lunch.

Continued on page 50

SPITE SOFTWARE

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Check out Full Diskclosure, view our catalog at your convenience—we carry over 65 Osborne-related products—and, as a special bonus, receive a free program that defines function keys. Full Diskclosure is only $2 postage & handling or free with any order. If ordering only Full Diskclosure, please order by mail.

A GOOD READ

■ **Hypergrowth, The Rise and Fall of Osborne Computer Corporation by Adam Osborne.** Learn what really happened at Osborne Computer Corp: Was the Executive really announced too early? (p. 118). Why does Osborne think highly of OCC's new management? (p. 157). What was Apple's Steve Jobs' emotional reaction to O1's pricing? (p. 24). Did Kaypro conspire to thwart OCC's financing? (p. 100). This book is so controversial, Osborne had to print it himself. Through a special arrangement with Adam, we make it available for $19.95 or $14.95 with any order.

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Tech Tips

Enhancing WordStar With ANYCODE

ANYCODE is a program that modifies WordStar so that you can put printer codes in WordStar text to control the printing of the text.

Doug Hurst

The Epson FX, MX (with Graftrax) and RX series of printers, as well as many other brands of printers, have many more modes of operation available than can be accessed by a normally-installed version of WordStar, even if one uses all the built-in and user defined print control code facilities available.

Not only do these built-in and user defined codes *not* keep pace with the printer's capability; once installed, they are not alterable without using DDT.COM, SID.COM, or WordStar's INSTALL.COM. There are several commercially available programs that will let you send all the control codes a printer will accept. They differ from the ANYCODE program presented in this article in that ANYCODE is free. This article is also designed to serve the dual purpose of displaying how much untapped potential there is in standard WordStar.

ANYCODE makes WordStar more powerful and text files more flexible and portable. ANYCODE does this without enlarging the size of the main WordStar program WS.COM. This is a very important point. By keeping WS.COM confined to its "stock" size, it may installed or re-installed using the supplied INSTALL.COM program without affecting or having to re-install ANYCODE.

The Benefits of Using ANYCODE

Before getting into the coding and installation of ANYCODE, it is important to see what the outcome of your efforts will be. The benefits should pique your interest and keep you from giving up when you are typing in the somewhat lengthy code.

If you regularly use a WordStar with CHARTECH or similar program installed, you already possess the function that ANYCODE will perform, and you can skip this article, or read at your pleasure to see if ANYCODE does it better for your application. As mentioned earlier, a nice feature of ANYCODE is that it does not enlarge the size of WS.COM as many similar commercially available products do.

Once installed, use of ANYCODE codes has the same functional effect as WordStar's print control codes. Instead of embedding them in the text with a print control code such as ^PS, you enter ANYCODE codes very much as they actually appear in your printer's user manual.

However, ANYCODE codes are not invisible when using WordStar to edit the text. When you place ANYCODE codes in your text, they are treated just like normal text by WordStar. This means they will be included in such functions as wordwrap and paragraph reformatting. For this reason, it is suggested that you enter all your text, get it formatted just the way you want, then go back and insert the ANYCODE codes.

You may find yourself using the ^OX (release margin) command more than you are used to, because WordStar doesn't recognize the ANYCODE codes, causing some lines to extend far beyond the screen margin. Don't worry because ANYCODE codes work just like WordStar's print control codes. The actual line will fit within the margins if it did prior to code insertion.

ANYCODE codes will usually take one of the three forms shown below, just as most printers accept codes in one of these three forms:

- A single hexadecimal code, as in 01A for the Control-Z code. This is sometimes shown as 1AH, where "H" stands for hexadecimal.
- An ESCape (01B in hexadecimal) followed by another hexadecimal code.

```
; ANYCODE.ASM - A program to allow printer codes to be
;               transmitted to EPSON or other dot matrix
;               printer from within WordStar text.
;
;               Author:  D. M. Hurst
;               Date:    April 23, 1984
;
        ORG     XXXXh   ;Where XXXX is 02DEh for WS 2.26/3.0
                        ;and 02BBh for WS 3.3
mysub:  cpi     '^'     ;is it a code character?
                        ;you may substitute another
                        ;character if you use the
                        ;'' '^' often in your text
        jnz     ncheck  ;no, so next check
        sta     lead    ;yes, so store temporarily
        mvi     a,1     ;get a 1 in accumulator
        sta     fl      ;set fl flag
        ret             ;get another character
                        ;without printing
ncheck: cpi     '~'     ;is it a code character?
                        ;you may substitute another
                        ;character if you use the
                        ;'' '~' often in your text
        jnz     hcheck  ;no, so check if part of
                        ;code sequence
        sta     lead    ;yes so store temporarily
        mvi     a,1     ;get a 1 in accumulator
        sta     fl      ;set fl flag
        mvi     a,1bh   ;~ means escape required so
        jmp     pout    ;send it.
hcheck: mov     b,a     ;set input char aside
        lda     lead    ;get contents of lead
        cpi     '^'     ;are we in a code seq?
                        ;NOTE: if you changed this code
                        ;above, change it here too.
        mov     a,b     ;char back in accumulator
        jz      flchk   ;yes, so check if flag set
        mov     b,a     ;no, so char back to b
        lda     lead    ;check lead again
        cpi     '~'     ;are we in a code seq?
                        ;NOTE: if you changed this code
                        ;above, change it here too.
                        ;char back in accumulator
        mov     a,b     ;char back in accumulator
        jz      flchk   ;yes, so check if flag set
        jmp     pout    ;no, so print char normally
flchk:  mov     b,a     ;set char aside again
        lda     fl      ;get fl flag
        cpi     00h     ;1 if set set
        mov     a,b     ;char back in accumulator
        jz      addsnd  ;not set, so last char in seq
        mov     b,a     ;yes, so set char aside again
        mvi     a,00h   ;no, so place 00h in accumulator
        sta     fl      ;and lower the flag
        mov     a,b     ;char back in accumulator
        cpi     39h     ;is code char a letter?
        jm      nolet1  ;no, so never mind
        sui     07h     ;yes, so make it a number
nolet1: sui     30h     ;now down it form ASCII
        rlc             ;first char in code so
        rlc             ;move 4 low bits to high
        rlc
        rlc
        ani     0f0h    ;0 4 lower bits
        sta     first   ;store it
        ret             ;go get second char code
addsnd: mov     b,a     ;set 2nd code char aside
        mvi     a,00    ;0 the accumulator
        lxi     h,lead  ;get lead addr pointer in hl
        mov     m;a     ;0 out the lead
        inx     h       ;up the hl
        mov     m,a     ;also 0 the flag
        mov     a,b     ;get char back
        cpi     39h     ;was 2nd code char a letter?
        jm      nolet2  ;so so skip it
        sui     07h     ;yes so make it a number
nolet2: sui     30h     ;now down either from ASCII
        lxi     h,first ;point to first code char addr
        mov     b,m     ;move actual char to b
        add     b       ;add a to b (result in a)
pout:   mvi     c,5     ;print full code char
        mov     e,a
        call    5
        ret             ;back for next real char
;
lead    ds      1       ;space for lead code
fl      ds      1       ;flag space
first   ds      1       ;store first code while
                        ;waiting for 2nd to pro-
                        ;cess.
        end
```

Figure 1. *The ANYCODE program which, when assembled and inserted into the appropriate location within WordStar's WS.COM file, provides the ANYCODE features.*

```
**********************************************************************

'0FCompressed print'12          (All)

'0EExpanded print'14          ''
~45Emphasized~46          ''
~34Italic print mode~35          (MX w/Graftrax, FX, RX only)

~2D'01Continuous underline~2D'00          ''

~53'01Sub~48~54'01script          ''

~53'00Super~48~54'01script          ''

**********************************************************************
```

Figure 2. *A test file of ANYCODE codes for Epson printers.*

- An ESCape, a hexadecimal code, another ESCape, a hexadecimal code, then any number of "trailer" hexadecimal codes.

Below are ANYCODE examples that would occur in your text file, controlling the typeface for Epson printers:

`'0F` This transmits 0FH (turn condensed print mode on).

`~45` This transmits an ESCape followed by 45H (turn emphasized print on).

`~2D'01`
This transmits an ESCape followed by 2DH and 01H (turn on continuous underline).

Below is a further example which contains a short section of text, first without codes and then with ANYCODE codes embedded:

```
Dear Bob,

Wanted to let you know I was thrilled with the modified
BIOS you sent me. It worked SUPER.


Dear Bob,

Wanted to let you know I was ~34thrilled~35 with the modified
~2D'01BIOS~2D'00 you sent me. It worked '0ESUPER!'14.
```

In the lower example with the embedded (again Epson) codes, `~34` and `~35` turn italics on/off, `~2D'01` and `~2D'00` turns underline on/off and `'0E` and `'14` turn expanded print on/off.

Notice how the first line now extends past the normal margin. The line *will not* extend past the margin when the printing actually takes place since ANYCODE codes do not print.

The two lead characters for the ANYCODE codes were picked especially for the Osborne computer. You will not find them on your keyboard. To get the "~" (tilde) character, type Control-+ To type a single accent mark "'", type a Control-? (question mark).

If you haven't seen the obvious advantage to sending the printer codes in the ANYCODE format over WordStar's codes yet, here are two:

First, you can send *any* code to the printer. (Okay, the cats out of the bag, now you know where the name of the program came from.)

Second, say you take WordStar and a document disk with you somewhere (like from home to work) and want/need to print a file using another computer (obviously another Osborne or Osborne disk format compatible). You prepared the document on your Osborne which is installed with print controls to send Epson codes. The computer at work, however, is driving a NEC printer. With ANYCODE codes embedded in the text, wouldn't it be easy to use the Find and Replace (`^QA`) command to find the Epson codes and substitute NEC codes? Answer yes so we can continue.

There are a few cautions, and you may as well know them now.

1. Use all capital letters (`'0A`, *not* `'0a` — and that's zero, not "o").

2. Each hexadecimal code must be two digits (5H entered as `05`, EH entered as `0E`, etc.)

3. Due to space limitations and a desire on the part of the author to keep ANYCODE confined to the `MORPAT:` area (explained later), no provisions were made to be able to print the lead-in characters ' and ~. If you use either of these characters frequently in your word processing operations, you should consider picking other characters that you do not use often. The comments to

ANYCODE.ASM below indicate where to make substitutions to the default lead-in characters.

4. The MORPAT: area must be free. Later in the article DDT.COM is used to make some modifications to WordStar and check to see that the MORPAT: area is clear. If it is not, ABORT!

5. ANYCODE as installed below is for versions of WordStar installed to use the CP/M Primary List Device. You can check this when you first boot WordStar and observe the sign-on message (Also when running INSTALL.COM on WordStar, check the label CSWTCH: — it must be 00 for ANYCODE to be guaranteed to work).
Here is a wrong, and then a right example of ANYCODE syntax:

Wrong

```
'FNow is the time for ..... the aid of their countries.'12
```

This is a wrong method of turning compressed print on/off. Missing is the zero (0) that should be between the ' and F at beginning of the sentence. I promise you that this will not work.

Right

```
'0FNow is the time for ..... the aid of their countries.'12
```

I promise you that this *will* work.

Follow the simple rules laid out above, and you will have no problem. Now for the work.

WordStar Versions

MicroPro (makers of WordStar) and/or Osborne, in their infinite wisdom, decided to include INSTALL.COM with WordStar, but not to include the complete terminal and printer patch areas. (Early Osborne 1 user's did receive this treat before Osborne converted to the "improved" reference manuals). Luckily, this writer was able to find a complete manual for WordStar version 3.0.

At any rate, there is an area within WordStar, labeled MORPAT:, that contains 126 empty bytes and exists for the sole purpose of storing "user defined subroutines." ANYCODE will be installed in this MORPAT: area. (By enlarging the size of WS.COM, even more area can be made available for user supplied code.)

Where is the MORPAT: area? For the three most popular versions of WordStar, all of which are known to work with ANYCODE, it resides at these addresses:

	WordStar		
version	2.26	3.0	3.3
address	02DEH	02DEH	02BBH

ANYCODE Code and Assembly

The assembly language code for ANYCODE is shown in figure 1. You can type it into a file using WordStar, then assemble it using the ASM program supplied with your Osborne, as explained below. But first, a few advance comments about the code, so that you may understand what you are typing.

We will modify one of WordStar's printer drivers to divert all characters to be sent to the CP/M Primary List Device to our ANYCODE subroutine.

Each character is first checked to see if it is an ANYCODE lead-in character. If it is, it is stored, a flag is set and the next character is read. If this character wasn't a lead-in character, it is checked to see if it is the first or second character following a lead-in character. If it wasn't, it is sent out to the primary list device normally.

If the lead character is being stored and the flag is set, it means the current character is the first character following the lead character. The flag is lowered, and the character processed to become half of the total follow-on code.

Then the last character is read. It too is checked to see if it is a lead-in character or is the first or second follow-on character. If it is the second follow-on character, it is added to the first follow-on character, and the result sent to the list device (printer).

If you didn't understand most of that don't worry about it. Understanding is not a requirement for ANYCODE to work. Here is the code. Be sure to use the N non-document mode if you use WordStar.

Having entered ANYCODE.ASM above, it must be assembled. Place your CP/M system disk in drive A and the disk containing ANYCODE.ASM in drive B. Enter the following command line from the CP/M A) prompt:

```
A)ASM ANYCODE.BBB↵
```

(The ↵ symbol stands for the Return key.)

If there are no errors, another step complete. I successfully assembled this code exactly as it appears in this article. In fact, the code was read into the article from ANYCODE.ASM using WordStar's ^KR command. If there are errors in assembly, go back and check your typing.

If it did assemble without error, you should be left with the files ANYCODE.ASM, ANYCODE.HEX and ANYCODE.PRN on drive B. Do not use LOAD.COM and attempt to load ANYCODE.HEX into a ".COM" file. This is not necessary and would serve no useful purpose.

Installing ANYCODE

This is very simple. Place the files WS.COM, WSMSGS.OVR, WSOVLY1.OVR, MAILMRGE.OVR (MRGEPRIN.OVR), DDT.COM and ANYCODE.HEX on a system disk (one prepared with SYSGEN) in drive A.

Note to single density users: you don't need all these files. You can get by without the three ".OVR" files and add them back after installing ANYCODE and deleting DDT.COM and ANYCODE.HEX (the file created during the assembly of

ANYCODE.ASM).

When you have the files on a system disk, enter one of the following commands (shown in **bold type**) depending on your version of WordStar, and you'll see the resulting displays (shown in regular):

Version 2.26	Version 3.0	Version 3.30
A>**DDT WS.COM** ↵	A>**DDT WS.COM** ↵	A>**DDT WS.COM** ↵
DDT Vers 2.2	DDT Vers 2.2	DDT Vers 2.2
NEXT PC	NEXT PC	NEXT PC
4000 0100	3F00 0100	4600 0100
-	-	-

The MORPAT: area must be clear. So, from the - prompt type the following:

Version 2.26	Version 3.0	Version 3.30
-d2de ↵	**-d2de** ↵	**-d2bb** ↵

You should see something on your screen similar to what I show below, provided your WS.COM has not been previously modified by another add-on program. If there is anything besides zeros in this area, ABORT!. Your WordStar has already been modified by someone. Continuing will overwrite the code in this area.

```
02BB 00 00 00 00 00 ←(versions 2.26 and 3.0 start at 02DE)
02C0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ................
02D0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ................
02E0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ................
02F0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ................
0300 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ................
0310 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ................
0320 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ................
0330 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ................
0340 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ................
0350 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ................
0360 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ................
-
```

Now, from the - prompt, type the following DDT commands:

```
-IANYCODE.HEX ↵
-R ↵
```

If you have WordStar version 3.30, type this one:

```
-d2bb ↵
```

For WordStar versions 2.26 and 3.0, type this one:

```
-d2de ↵
```

You should see something on your screen similar to the following (versions 2.26 and 3.0 will start at 02EE):

```
02BB FE 60 C2 23 01 .`.#.
02C0 32 92 01 3E 01 32 93 01 C9 FE 7E C2 35 01 32 92 2..>.2....~.5.2.
02D0 01 3E 01 32 93 01 3E 1B C3 8B 01 47 3A 92 01 FE .>.2..>....G:...
02E0 60 78 CA 4C 01 47 3A 92 01 FE 7E 78 CA 4C 01 C3 `x.L.G:...~x.L..
02F0 8B 01 47 3A 93 01 fE 00 78 CA 70 01 47 3E 00 32 ..G:....x.p.G>.2
0300 93 01 78 FE 39 FA 64 01 D6 07 D6 30 07 07 07 07 ..X.9.D....0....
0310 E6 F0 32 94 01 C9 47 3E 00 21 92 01 77 23 77 78 ..2...G>.!..w#wx
0320 FE 39 FA 81 01 D6 07 D6 30 21 94 01 46 80 C3 8B .9......0!..F...
0330 01 0e 05 5F CD 05 00 C9 00 00 00 00 00 00 00 00 ................
0340 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ................
0350 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ................
0360 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ................
```

The code for ANYCODE now resides in the MORPAT: area previously occupied by all those 00's.

The last modification inside WS.COM is to alter the printer driver to jump to our subroutine rather than simply send each character directly to the primary list device. We do this by overwriting the assembly language starting at the address corresponding to your version of WS.COM:

Version 2.26	Version 3.0	Version 3.30
-a71d ↵	**-a71d** ↵	**-a71c**
071D **call** **2de** ↵	071D **call** **2de** ↵	071C **call** **2bb** ↵
0720 **jmp** **723** ↵	0720 **jmp** **723** ↵	071f **jmp** **722** ↵
0723 ↵	0723 ↵	0722 ↵
-	-	-

To leave DDT, type:

```
-GO ↵        (or type Control-C)
```

Then type the following to save your work:

```
A>SAVE nn WS.COM ↵
```

(Where nn is 63 for version 2.26, 62 for version 3.0 or 69 for version 3.30).

That's it! You may now erase ANYCODE.HEX and DDT.COM from the disk containing the WS.COM you just modified. (Single density Osborne users should use PIP to copy WSMSGS.OVR, WSOVLY1.OVR and MAILMRGE.OVR (MRGEPRIN.OVR) back onto the disk containing the modified WS.COM.)

Figure 2 is a test file for EPSON printers. If you have a different printer type, consult your user's manual and substitute similar workable codes.

Doug Hurst is a member of the Hi-Desert Osborne Group (HOGS) and lives in 29 Palms, California.

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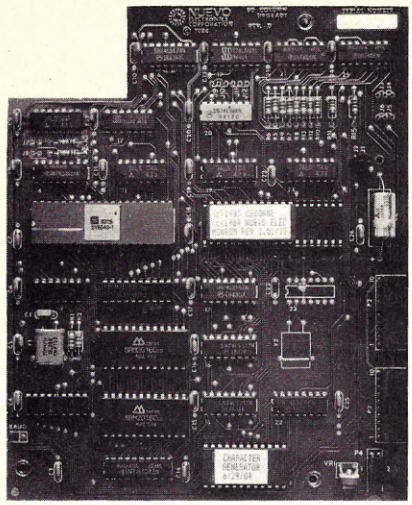

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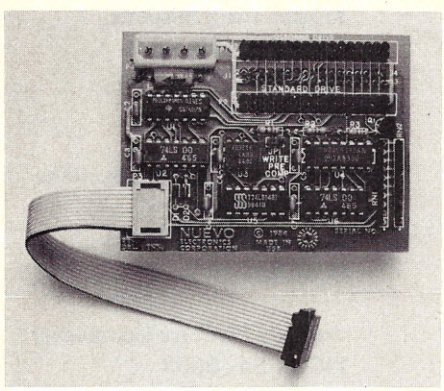

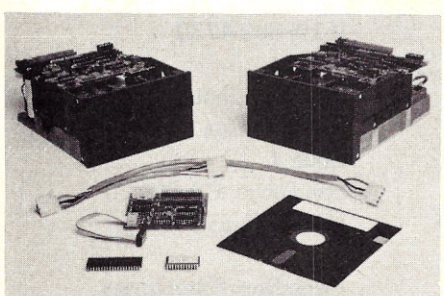

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Tech Tips

WordStar Print Spooling On the O1

Modifying WordStar for simultaneous editing and printing on the Osborne 1.

Timothy Perrin

Print "spooling" is where a computer can edit while it prints. Because a printer is really quite slow, there is plenty of time between sending information to the printer for editing functions, if the software involved is properly designed.

WordStar, fortunately, is designed for fairly efficient print spooling and, when properly installed, it will let you merrily type away while your printer is working. Unfortunately, the patches to do this are a bit complex but not beyond the scope even of a beginner. Even if you don't understand the explanation, just follow the step-by-step instructions and it will work fine.

First, format and SYSGEN a blank disk. Then use PIP to copy WS.COM, WSOVLY1.OVR and WSMSGS.OVR to that disk. That way, if you make any mistakes, you won't have to start all over again.

Put your CP/M system disk in drive A: and the disk with the copy of your WordStar in drive B:. Now just follow the instructions, typing whatever is in **this typeface** exactly as shown (system responses are shown in this lighter typeface). Be sure to check the notes to the right which list variable factors. The ↵ symbol means press the Return key.

WordStar version 2.26

```
A>DDT B:WS.COM↵
NEXT   PC
3900 0100
-S0718↵
0718 00 FF↵
0719 00 ↵
071A 00 C3↵
071B B7 55↵
071C C9 03↵
071D ?? .↵      (It doesn't matter what's here.)
-S0355↵
0355 00 CD↵
0356 00 2D↵
0357 00 E5↵     (E1 for double density.)
0358 00 A7↵
0359 00 C0↵
035A 00 3F↵
035B 00 C9↵
035C ?? .↵      (It doesn't matter what's here either.)
-^C
A>SAVE 56 B:WS.COM↵
```

WordStar version 3.30

```
A>DDT B:WS.COM↵
NEXT   PC
4600 0100
-S0718↵
0718 00 FF↵
0719 00 C3↵
071A B7 30↵
071B C9 03↵
071C ?? .↵      (It doesn't matter what's here.)
-S0330↵
```

```
0330 00 CD ↵
0331 00 2D ↵
0332 00 E5 ↵      (E1 for double density.)
0333 00 A7 ↵
0334 00 C0 ↵
0335 00 3F ↵
0336 00 C9 ↵
0337 ?? . ↵       (It doesn't matter what's here, either.)
-^C
A>SAVE 69 B:WS.COM ↵
```

Now, take your CP/M disk out of drive A and put your WordStar disk in drive A:, reboot the system and try it out.

The first part of the patch, at 0718, simply tells WordStar that you have installed a print spooler (that's what the FF does) and then tells it where to find it (C3 is an instruction to jump to the following address which is backwards, either 0330 for version 3.30 or 0355 for version 2.26.) These memory addresses are in the "user patch area" of their respective WordStars, an area set aside for just these kinds of patches.

The second part of the patch (at 0330 or 0355) simply checks the operating systems printer busy flag at address E52D in single density and E12D in double density. If the printer is busy you keep editing. If the printer wants more data, WordStar will send it down the line between your keystrokes.

These addresses are out of the way of such popular patches as memory mapped video, automatic arrow key changes, etc., which have been published before in *The Portable Companion* and *FOGHORN*. However, if when you go to patch the spooler in at 0355 or 0330 you find those addresses occupied, you can either hunt around for seven clear bytes nearby or put the patch outside the normal WordStar limits this way:

WordStar version 2.26

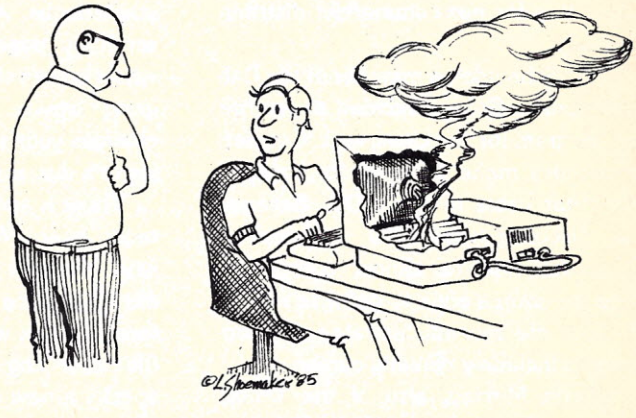
```
A>DDT B:WS.COM ↵
NEXT  PC
3900 0100
-S0718 ↵
0718 00 FF ↵
0719 00 ↵
071A 00 C3 ↵
071B B7 00 ↵
071C C9 39 ↵
071D ?? . ↵       (It doesn't matter what's here.)
-S3900 ↵
3900 00 CD ↵
3901 00 2D ↵
3902 00 E5 ↵      (E1 for double density.)
3903 00 A7 ↵
3903 00 C0 ↵
3904 00 3F ↵
3905 00 C9 ↵
3906 ?? . ↵       (It doesn't matter what's here either.)
-^C
A>SAVE 57 B:WS.COM ↵      (Note 57, not 56.)
```

WordStar version 3.30

```
A>DDT B:WS.COM ↵
NEXT  PC
4600 0100
-S0718 ↵
0718 00 FF ↵
0719 00 C3 ↵
071A B7 00 ↵
071B C9 46 ↵
071C ?? . ↵       (It doesn't matter what's here.)
-S4600 ↵
4600 00 CD ↵
4601 00 2D ↵
4602 00 E5 ↵      (E1 for double density.)
4603 00 A7 ↵
4604 00 C0 ↵
4605 00 3F ↵
4606 00 C9 ↵
4607 ?? . ↵       (It doesn't matter what's here, either.)
-^C
A>SAVE 70 B:WS.COM ↵      (Note 70 and not 69.)
```

Note that you must SAVE an extra "page" because you have extended WordStar into more memory. If you patch WordStar this way, remember that you won't be able to use INSTALL (or WINSTALL) to patch WordStar in the future without doing the second part of this patch by hand again and again saving the larger version of WordStar.

The original version of this patch appeared in the June 1983 issue of the newsletter of the Raleigh, NC, Osborne Computer Club and was picked up and reprinted in the October 1983 *The Portable Companion* under the byline of John Dilday. Ted Warn or R.O.C.C developed the original subroutine. I adapted it for WordStar 3.3 myself and moved the subroutine to a location where it was safe from other patches.



I've located that hidden glitch...

Business

VDO: A Free WordStar Substitute

A small text editor for quick editing that acts like WordStar but doesn't have all the shortcomings.

Cheryl Peterson

WordStar is a good word processor to have for your Osborne, but have you ever wished for a quick and dirty, very basic text editor? One that you could use for programming or just taking a quick look at files when you only want to check what's there? One that wouldn't take up great hunks of disk space? One that moved quickly through your files? Here it is: VDO. 4k! Fast!

This text editor was originally designed by Richard Fobes and written in 8080 mnemonics. *BYTE* magazine bought the program listing and a two-part explanatory article, printing it in their 1982 September and October issues. The program's copyright notice states it is for non-commercial distribution only.

Fritz Schneider, a member of the Dallas Osborne Group, decided to rewrite the program for the Osborne 1. Cosmetic changes make it easier for habitual WordStar users to use VDO. Because the Osborne uses Z80 mnemonics, Schneider had to almost completely redo the source code to get it to run on the O1. He recently updated the program to include a blinking cursor.

Martin Murray, also of the Dallas Osborne Group, modified the O1 version to get it running on the Executive. There are some differences between the two Osborne versions, but these are fully explained in the available ".DOC" files.

With the permission of all the authors, the Osborne 1 and Executive versions of VDO have been added to the FOG library, despite their not being public domain software. The document files for the programs list the addresses of Fobes and Schneider, so that grateful users can express their thanks. (Hint! Hint!) They are also included at the end of this article. Murray can probably be reached through the Dallas Group.

For programming, this editor is an excellent alternative to ED. One reason for this is the scroll speed. Because the entire file is in memory, the screen scrolls by as fast as the keys can be pressed. Going to the top or bottom of a file is instantaneous. As in WordStar, you can scroll by pages up or down, but the whole screen changes in a flash. No flickering waves as you go. (WordStar changes your screen line by line, resulting in a distracting flicker.)

There is another interesting improvement over WordStar. When doing a save, the new file (or new version of an old file) can be given a new filename before the disk write. This means the old file needn't be overwritten. You can also specify a new drive identifier in the filename.

Transferring the file from a floppy to a hard disk, or from one disk drive to another is easy, even from inside a file. If no new filename is specified, the program saves the file just as WordStar would, by writing the new file to disk and renaming the old file as a backup (".BAK" extension).

But the improvements go even further. Should a disk full error occur, a new disk can be placed in the drive and the save can be reinitiated. NO LOST FILE! No great hassle.

VDO can be initiated two ways. It can be loaded by typing `VDO` ↵ at the system prompt, like WordStar (though much quicker), in which case it requests the filename for the document to edit. Or it can be started by typing `VDO` and a legal filename at the system prompt. This method puts you right into the file.

Yes, I know you can load WordStar this way, but WordStar takes a lot longer. According to the Peterson family's extremely accurate Polodex sundial watch, VDO loads in two seconds. WordStar version 3.3 takes 15 seconds. Loading with a specified filename takes longer (for both programs) in direct relation to the length of the file.

For those who don't know, by typing `WS` at the system prompt (`A>` or `B>`) to load WordStar, you can add the filename of the document you want to edit and go right into your file. For example, the command `WS B:WHATEVER.TXT` ↵ starts WordStar and loads the file WHATEVER.TXT from the B drive. To

do this, though, you have to bypass the Osborne's AUTOST program.

Back to VDO! If the specified file already exists on disk, VDO loads the text into memory. If not, it tells you the file doesn't exist, but still retains the filename for any future saves.

As in WordStar, there are special control codes for some procedures. As much as possible these correspond to commands in WordStar. ^G deletes a character, ^Y deletes the rest of the line, ^V turns the insert on/off, and scrolling by screen is accomplished with ^R and ^C.

Again there are slight differences. ^T deletes the rest of the line (like ^Y). ^F repeats the last find, instead of moving one word to the right.

The escape sequences (ESC) are part of what makes this program so amazing. Pressing the ESC key takes you to a function menu. Pressing it again puts you back in your text. Combining the initial ESC with another character creates highly desirable effects. Blocks are added, deleted, marked and written to disk using ESC sequences. If the filename needs to be changed, the ESC menu shows how. The document can be printed from within the file using ESC P. If you decide to work on a different file, ESC F will let you load in the new file. (Make sure the old file's been saved to disk first, or you'll lose it or any changes you've made.) ESC X will save the file and exit to CP/M.

There is another major difference between VDO and WordStar, and it's the only thing that I found undesirable (although, maybe the authors had good reason). The arrow keys do not work quite the same way. They will move you horizontally, just as expected. But when moving vertically, they do not go straight up or down. They move to the beginning or end of the line. If repeated, the cursor moves up or down one line at a time.

Although this function is thoroughly outlined in the ".DOC" file, it makes working with columnar data difficult since the cursor only moves vertically in the first or last columns. When doing programming this can be a hassle, because changes frequently occur in the middle of lines and the fastest way to get to the corrections is frequently straight up or down.

I mentioned this to Schneider. He told me that he had gotten used to the cursor going to the beginning of the line while using another program. He also said that with WordStar the cursor would move over to the column position of the last character of the shortest line. This meant having no idea where the cursor would end up when scrolling vertically. So he had the cursor go to the beginning of the line.

Talk about software support! Schneider promptly changed the program to scroll vertically just as WordStar does, while adding the command ^A to go to the beginning of the line.

I also mentioned that word wrap would be nice. Voila! There is now a command to turn word wrap on. The screen appears to wrap at 52 columns. These changes were made within a couple weeks and were only implemented after serious consideration. The limiting factor was whether or not the changes can be made without causing VDO to be more than 4K long.

VDO has a few limitations. The file being edited must fit in the RAM left over after VDO and CP/M have been loaded. This is because VDO doesn't use disk space by making temporary storage files. For the O1, this limits editable files to about 50k. For the Exec, about 48k.

The move a block (^KV) function has been left out, with good reason. For the amount of disk and memory space such an option requires, it is better to simply write a block of text into a temporary file, delete the block from the old location, move the cursor to the new place and insert the temporary file back into the document. A few more steps, but the same result, with no disk or file space sacrificed.

You won't find corresponding commands for most of the ^Q functions of WordStar. If you think about it a second, you probably won't miss them either. The only ones most people use are "go to the top" or "go to the bottom" of file, and these functions still exist in modified form (ESC T and ESC B).

Many of the O1's graphic characters are available to be used in text to appear on screen. Unless you plan to print the file using another program, I wouldn't recommend trying to print graphics generated with this program. It can probably be done, but it would be a hassle.

One way of keeping the program small was to provide a minimal print function. It just ships everything out whatever port the disk is set up for. This means that if you want to switch between the parallel or serial port, you have to load SETUP and change the communications protocol and port there.

VDO has no fancy printer codes or patches to create a "pretty" printout; no margin sets, no single/double spacing, no page numbers, headers or footers. Since WordStar does all that anyway, it would just be a waste.

Although the word wrap function has been added, use it with caution. There is no "reformat paragraph" command if you want to change line lengths or add words later. The word wrap changes the last space in the line to a hard carriage return and moves everything down to the next line. If you decide to add things later, you'll need to delete the Returns at the end of the lines and reformat the text manually. But keep in mind this program is not meant to be as complicated as WordStar.

For a non-commercially offered program, VDO is excellent. The documentation is as well written as most professionally marketed software. Because it is so simple to use, it would be a good program for beginning computer users. You certainly can't beat the price.

Although it is being offered by FOG, I should mention that SPITE software is distributing the program on a disk of "best public domain programs." I'm sure they just aren't aware that this is not a public domain program and will change the labeling on their package as soon as they find out.

For the Kaypro users who have started reading *The Portable Companion*, I have bad news. Because Kaypro computers don't use the same memory mapped video, they won't run VDO.

Here are the VDO author's addresses: Richard Fobes, Creative Computer Services, PO Box 1327, Corvallis OR 97339; Fritz Schneider, 16016 Red Cedar Trail, Dallas TX 75248. Send a contribution to these authors if you like the program.

New Products

Information about new products is derived from press releases sent to the editors of The Portable Companion *by the companies announcing the products. Statements of "fact" or opinion expressed in this section are those of the announcing companies, not the editors. We are not able to check these statements for accuracy, nor have we evaluated these products, although we are planning to evaluate some of them.*

SuperCalc Templates For Income Tax Prep

Quantum Resources announces its latest addition to a line of U.S. income tax preparation software: USTAX '84. USTAX '84 is specifically designed for 1984 personal income tax preparation. The package includes SuperCalc templates modeling 16 of the most common IRS forms. The forms include: A, B, C, D, E, G, SE, W, 2441, 4562, 2106, 3468, 2119. USTAX '84 is supplied for SuperCalc versions 1.05, 1.12, and 2.0 and is available therefore for virtually every Osborne computer.

A depreciation calculator is included for straight-line, declining balance, sum of years' digits, and Accelerated Cost Recovery System depreciation calculations. The income tax is calculated automatically on Forms 1040, 1040A, and 1040EZ which proves to be a real time saver in the repetitive analysis of future tax strategies. In the case of someone wanting to income average, the schedule G templates efficiently and automatically calculate the information for you.

USTAX '84 sells for $49.00, plus mailing and handling. Quantum Resources also offers an update discount of $20 to those purchasers of USTAX '83.

For more information contact, Quantum Resources, 5615 Morningside, Suite 232, Houston, TX 77005. (713) 660-8119.

Multiplan Templates For Tax Analysis

Vision Information Products, Inc. announces the release of TaxVision, an income tax analysis and preparation package for users of Microsoft's Multiplan.

TaxVision is an integrated set of templates that works with Multiplan. Each template represents an IRS form or schedule that prints in a format approved and accepted by the IRS. The user simply fills in the blanks with data that pertains to their situation. TaxVision rapidly calculates and displays the results of the entries allowing the user to react to his decisions.

The data needs to be entered only once. Entries and results are automatically carried over to other tax forms where required — no manual transfer of data is necessary. In case of changes, TaxVision automatically carries the new entry to all applicable forms and schedules and recalculates the tax. Thus TaxVision allows the user to investigate various alternatives.

The screens which prompt entries and display results parallel the actual forms and schedules. Where appropriate, default values are entered for the user.

TaxVision supports schedules A, B, C, D, E, F, G, R, SE, W, and forms 1040, 2106, 2119, 2210, 2441, 3903, 3468, 4562, 4684, 4797, 5695, 6251, and 6252. Also included are an Instruction Manual, a Tutorial, Form 1040 continuous forms (10), "green bar" paper to print forms and schedules other than form 1040, and low-cost annual updates.

The TaxVision templates are easily modified and the user may create any number of supporting templates such as a check register, family budget, or ledger to accumulate data all year long.

TaxVision will run on the Apple II/III series, IBM PC, compatibles, Commodore 64, most CP/M machines including the Osborne 1.

For more information contact Vision Information Products, Inc., 5500 Atherton Street, Suite 306, Long Beach, CA 90815. (213) 431-5284.

Executive Function Keys & Screen Printer

INOVA announces KEYS, a program for the Osborne Executive that enables the user to edit or redefine the function keys or print the screen. Using a window approach, it is available almost anytime,

even during most programs. KEYS also allows the loading of four additional sets of function keys, local control of system parameters, a typewriter mode, and much, much more. A utility program to save or load system function keys and terminal attributes is also included. $34.95 plus $3.00 s/h (Texas residents - add $2.14 sales tax).

For more information, contact INOVA, 11311 Stemmons Freeway, Suite 7, Dallas, TX 75229. (214) 241-9515.

Voice of the End User

The Institute for Personal Computing announces that it is recruiting volunteers for a new program, VOTE.

VOTE stands for Voice of the End User. Vote will allow personal computer users to have a voice, and will give them a chance, through IPC, to recognize excellence and earmark products and services that lack excellence.

IPC will, through a variety of outlets, including their own publications, let the public know the results of VOTE's hands-on research. The program will allow participants to participants to contribute in a number of ways, including in voting in IPC's Award of Distinction program (which recognizes outstanding products and services).

They are looking for products which have improved the quality of life for end users. They are asking such questions as whether a program is useful, whether a piece of hardware does what an advertisement says it will do, whether a manual is a help or a hindrance, or whether a product is good or a failure for the user, as these questions can best be answered by the average user.

Dr. Roger Schlobin, a member of IPC's advisory board, has been named director of the VOTE program. IPC is devoted to the advancement of the personal computer and its uses through programs of education, information, and research. Membership is open to anyone interested in personal computing. Additional information, and the IPC "Bulletin" is available by contacting Pat Neisel, IPC editorial assistant, at the address below.

For more information about VOTE contact Dr. Schlobin, VOTE, The Institute for Personal Computing, P.O. Box 8187, Vero Beach, FL 32863. (305) 231-6846.

Smart Terminal and File Transfer

MASTERCOM-Telecommunications Utility is a full-feature, easy to use "smart terminal" and file transfer utility that is so good that The Software Store is offering a 30-day money back guarantee on the software.

MASTERCOM can make your computer a terminal to a host time sharing system, and capture data onto your disk and/or printer from almost any computer. It transfers files using an error correcting protocol with a MASTERCOM or system equipped with the Christensen Xmodem protocol (Modem7).

MASTERCOM supports most communications protocols including Christensen Xmodem, Xon/Xoff, line at a time, and no protocol. It includes the following features: directory display and multifile transmission using wild card file specification, file erase, file rename, disk drive logging, auto dial, stored responses invoked by a single keystroke, file viewing, host mode unattended operation, upload text throttle, filter or ASCII display option for received control characters, on-line selection and revision of communication parameters, friendly menu installed and menu driven operation.

This program runs on most computers with CP/M-80 and sells for $49.

For more information, contact The Software Store, 706 Chippewa Square, Marquette, MI 49855. (906) 228-7622.

Collections of Public Domain Software

Technology Help, Inc. (THING) has a public domain software library that consists of over 100 disks of single-sided double density CP/M software and double-sided double density MS-DOS software. The programs have been selected from a wide variety of sources including the libraries of FOG (First Osborne Group), SIG/M (Special Interest Group/Microcomputers), CPMUG (CP/M Users Group), PC-BLUE, several commercial sources and various bulletin boards. In some cases (e.g., FOG) the entire library is available in its original form. In most cases, though, programs have been extracted from the various collections and combined into special collections on a disk relating to the same subject.

Copies of the catalog are available on request. Public domain programs are available from THING in general collections for either MS-DOS or CP/M general utilities, disk utilities, file manipulation and transfer, and printer and graphics programs. Specialized programs are available for the Osborne computer. Language utilities include BASIC, COBOL, PASCAL, MUMPS, and assembly language as well as other miscellaneous languages. Applications programs cover a wide range of business and personal needs in finance, engineering and science, database management, word processing, and spreadsheet analysis. A large number of special applications are available for users of dBASE II, SuperCalc, and Lotus 1-2-3. There are also many games.

Disks are available for a copy charge of $5.00 per disk single-density, single side, $7.50 for double-density double side, and $10.00 for double-density double side. Handling and mailing are $5.00 per order.

For more information contact, Technology Help, Inc., 3401 Science Center, Philadelphia, PA 19104. (215) 387-9036.

MBASIC Data Processing

MPI-MODULE 1 is a set of nine easy-to-use programs written in MBASIC to make data processing operations easier in a small business operation. MPEDIT is a line editor working under MBASIC. MPORDER is a multi-key ordering program which sorts up to ten keys. MPREPORT is a multi-level control break report generator which works up to ten levels. MPSELECT makes record selection using pattern matching easier, while MPVIEW enables a quick view of a text file or program on the disk.

MPPRINT prints your programs with page break and page number and MPCOPY copies files while in MBASIC. MPAPPEND copies several files into one file, and MPFIELD copies selected files into two different files.

This collection of programs can be useful for programming as well as for planning tools. The source code in MBASIC is supplied, so you are free to incorporate them into your own application programs. The program can save a programmer a great deal of time in the design and analysis of small programs by letting you sort, select and report. This program runs on both single and double-density Osbornes, and costs $99.95 including a User's manual. The User's manual can be purchased separately for $5.00.

For more information, contact Modular Processing, 11023 Bellerive Drive, Houston, TX. 77072.

Business Letters

For those who don't like to write business letters, memos, and other business letters, there is a new program called Gold Letters/Gold Writer from Data Base Industries that might be just the thing to help you.

The Gold Letters is a set of 101 computer formatted business letters on disk. The program is divided into 13 general classes of correspondence from credit collection, sales and marketing to employee relations and community activity letters. It comes with a looseleaf binder which holds a printout of each letter, and includes a table of contents with a one line summary of each letter.

A word processing program called Gold Writer is included on the disk. Gold Writer is an easy-to-use and learn with everything necessary for normal business correspondence and memos. It lets you add, modify, or delete words, sentences, or whole paragraphs, and uses the same commands as WordStar.

In addition, Gold Writer has a 500 character "undelete" buffer which lets you recover items deleted by mistake. There are many other features as well which are documented in the Gold Writer manual.

This company also produces Gold Corporate Forms, and Gold Check Register. Gold Business Contacts will be available later this year, as well as a program that will allow busy offices to produce bilingual correspondence.

Gold Letters/Gold Writer sells for $99.00, or you can buy the Gold Star package which includes Gold Letters, Gold Contracts, Gold Corporate Forms, Gold Writer, and Gold Check Register for $295. It runs on CP/M.

For more information, contact Data Base Industries, 1555 North Cuyamaca, El Cajon, CA 92020. (619) 448-2121.

Plotting Software For Surveyors & Map-makers

Disco-Tech announces its new plotting software for land surveyors, TECH PLOT. TECH PLOT allows surveyors to pen plot maps complete with points, lines, annotations, north arrow, curve chart, and notes. Data is generated from the files created by the other programs in the packages or may be entered directly into the plotting software. TECH PLOT will also interface with the companies SURVEY 80, a surveying package.

TECH PLOT runs on CP/M-80. The pen plotters supported include Bausch & Lomb/Houston Instruments DMP-40, -41, -50, and -52, as well as Hewlett Packard 7580A. The price for TECH PLOT is $750.

For more information contact, Disco Tech, a division of Morton Technologies Inc., 600 B Street, Santa Rosa, CA 95402. (707) 523-1600.

Footnotes

Apteryx introduces wsNOTE, a new note formatting utility for WordStar files that provides numbered footnotes or endnotes, and other features.

This program requires no modifications to your copy of WordStar, and can be run without ever leaving it. It has a simple and natural file format. There are no strange embedded commands, and no control codes which conflict with printer installation. Thus you can use wsNOTE the day you get it.

There is unparalleled flexibility in the placement and format of notes so your paper looks the way you want it to. It can also produce tables and figures that don't cause awkward page breaks the way .cp (conditional page command) does. With fast one-pass, in-memory operation, you can produce either end or footnotes from the same source file with disk output.

Large documents may be split into separate files, which can be chained together or processed individually. There is also a CONFIG program which offers you permanent customization possibilities.

wsNOTE runs on either single or double-density Osborne and sells for $25.

For more information, contact Apteryx Software, 427 North Washington #4, Bloomington, IN 47401.

FORTH & Function Keys

FKEY.COM is a program written in a public domain version of FORTH, modified for the Osborne 1, which enables you to view the Osborne 1 special function key definitions and change them, or save a specialized set of function keys which can be recalled with a single command (dozens of sets can be saved), or customize any of the FKEY commands, or learn FORTH and write your own commands.

This program includes an assembler, FORTH line editor, decompiler, and CP/M/FORTH file transfer utility. Documentation is on the disk, and includes the source code for the function key utility, and the assembler. Assistance in learning and using FORTH is available to purchasers (mail inquiries include SASE).

A public domain FORTH screen editor set up for the Osborne 1 is available for an additional $10.00. Source code is included along with source code for the decompiler, file transfer utility, and the assembler source listing for the FORTH system itself.

The function key utility is copyrighted, the rest of the program is public domain. FKEY.COM is available on Osborne single-density diskette for $20.00 from Earth Express, 536 East Sacramento Street, Altadena, CA. 91001.

Easy Data Filing

SeekEasy is an easy-to-use filing system that accepts vague, incomplete, misspelled, or only partially correct inputs, and yet still finds, and displays the information that you want, with the "most likely" items at the top of the list.

When you run SeekEasy, it displays: `Type what you wish to find, then press return`, and it searches for your request. There are no picky spelling requirements, restrictions on word order, or worrying about fields, records, formats, or keywords. You merely type in a reasonable description of what you want found. SeekEasy also can find numerical strings. Each "item" is limited to two text lines, and lines can be split if necessary. Storing new data is just as simple and unrestricted.

SeekEasy runs on one disk that holds both SeekEasy and the data file, and can search through a data file of four million characters if the data disk is that large.

It comes with a utility program which adjusts SeekEasy to your terminal and allows you to choose special function keys. SeekEasy is self-prompting, so you don't need to know any technical information about your computer to use it.

SeekEasy also prints hardcopies of information as it appears on the screen. There is unlimited telephone support for this program, and a demo disk and full user's manual are available for $15.

The program runs on CP/M 2.0-2.2, nad needs a 56K or larger memory.

For more information, contact Correlation Systems, 81 Rockinghorse Road, Rancho Palos Verdes, CA 90274. (213) 833-3462.

Trading Strategies

If you're interested in investing, you can develop and test your own strategies using MAGIC and $MAGIC software. MAGIC — Moving Average Generated Criteria — generates a set of trading rules for any market vehicle or index by making retrospective runs with historic price data. Using those parameters with real-time prices, MAGIC figures the buy and sell signals to guide current market decisions. The program helps develop optimum trading strategies tailored to each vehicle.

The program has three modules: MAGIC for moving average/oscillator computations, DMAGIC for data entry and processing, and $MAGIC for computing loss and profit.

Each MAGIC runs printouts of 12 oversold/overbought moving averages, which can be used singly or in combination to develop trading strategies. $MAGIC computes each long or short trade, listing the entry and exit prices, and profit or loss. The printout also includes the number of profit and loss trades, maximum loss while trade is open, and total loss and profits.

$MAGIC has a 65 page manual for $79.95 plus shipping and handling. MAGIC comes with DMAGIC and MAGIC, and a 41 page manual for $49.95 plus handling and shipping. Demo disks are also available.

For more information, contact $WARE Tools for Investors, Box 645, San Luis Rey, CA 92068. (619) 757-0329.

MBASIC Cross Reference

PROGRAM MAP is a cross reference tool for Microsoft BASIC programs. It speeds program development and helps you accurately debug, modify, convert, and document your BASIC programs in a minimum amount of time.

PROGRAM MAP produces alphabetical lists of variables, commands, functions,constants, quoted strings, and line numbers. Each "word" is listed with the line number(s) in which it is found. Print width and paging control is included. It is fast and easy to use, and runs directly under CP/M.

It requires an 8080, 8085 or Z80 based computer with 48K bytes of memory, and CP/M. This program costs $150.

For more information, contact The Software Store, 706 Chippewa Square, Marquette MI 49855.

Letters continued from page 30

I've been using my 384K unit for one month and it's turned my single density Osborne 1 into a totally new machine.

Look here, it takes six seconds to go from the editing no file menu in WordStar to the dot prompt in dBASE II. Before I had Drive C: I had to boot up a new disk every time I wanted to edit a program. That was minutes waiting while the Osborne booted up different files. Now all I have to do is boot WordStar and then test the program with the R option. You run the program and then exit directly to WordStar. To step back and forth is now easy instead of a hassle.

Now all I have to do is boot the disks and run with it. I don't have to be constantly making disk accesses. I had to shell out $250 to Xerox for an exchange disk drive two months ago. Now my disk drives get 90% less wear and I do 90% more work.

Martin Kilgore
South Pasadena, CA

Krantz Responds: Drive C Review Stands

Your revived *Portable Companion* is certainly a source of surprises, at least to me. Your April/May issue reprinted my review of Drive C:, which I had nearly forgotten about. Your June/July issue's letters contained three attacks on the review.

One of the advantages to writing for a user group newsletter is that one knows the degree to which the reader will "read between the lines." In the case of TCOG, the readers take the material at face value, which is the way I write.

I find it interesting that both of the readers who responded are doing precisely what I said the unit would be good at — disk intensive operations for large parts of the day. This is "grossly inaccurate"?

We have passed the Drive C: around among many of the TCOG members, and it's not very hard to persuade an average user to give up the unit for the next person. I personally lost interest when Drive C: passed out Q&A flyers comparing Drive C: to CO-POWER-88. From that flyer you'd have thought the CO-POWER was the biggest rip-off of all time. It would have been just as useful for Zilog to compare the Z-80 chip to WordStar, or for a lamp manufacturer to beat up on a microwave oven because the oven light was hard to use as a reading lamp. Personally, I won't buy items marketed in that fashion.

I still stand by what I wrote — Drive C: is not a good buy for the average user.

Donald G. Krantz
Minneapolis, MN

Viva Archaic!

While I am relatively new to the use of personal computers in business (two years this December), I fully agree with your editorial regarding our "archaic" operating system. It will be a long time before any of the 16-bit systems achieve the level of support that CP/M enjoys. And if IBM proceeds with their plan for a proprietary operating system, such support may never materialize. OCC's reentry into the market is a significant achievement, and the Vixen is an impressive, affordable CP/M-based PC. I truly hope that our fickle marketplace gives it the attention that it deserves.

David W. Aukamp
Dunedin, FL

Faster? Better?

Just received the Nov/Dec issue of *The Portable Companion* and was interested in the article on speeding up WordStar by William D Esteb ("Faster Than a Shooting WordStar", p. 64).

I am sick of waiting for the garbage to parade past, like most WS users, so I jumped at the chance to do something about it. The change was simple to implement and the article easy to understand, and it took less than a minute to make the changes.

Unfortunately, after a successful first bootup, the screen went bonkers when I copied some files to another disk and tried to re-enter WordStar. I played around with a few things, trying to understand what was happening, and came to the conclusion that if NSWEEP is used to move the files, something happens to the WS.COM file and it can't be used again. I don't know enough about what's happening to do a fix, but I like the changed WordStar and can't do without NSWEEP. What do I do now? Mr. Esteb, is there a solution to this?

Ron Brown
Delhi, NY

I was somewhat dismayed with "Faster than a Shooting WordStar" by William D Esteb (Nov/Dec issue, p. 64). I think that it was well written for a novice such as me; it went step by step and was beautifully illustrated with expected displays. He forgot at least one thing though, and that was an "impact statement." He failed to tell me what I would have to give up if I changed all the suggested memory addresses to 01.

The initial messages whizzed by — good, that's what I wanted. But I found that WordStar no longer waited for my second command character when I was in the Help Level 2. If I wanted ^QC to go to the end of a file, WordStar would immediately display the help menu before I moved my finger to the C after typing the ^Q.

I find that using the Help Level 2 is more desirable to me than saving time at the beginning of a writing session. So, I needed to either return all the addresses to the original values or change one of the addresses. But, I had no idea which memory address affected the Help Level 2. After experimenting, I found that memory address 02D1H (WordStar 2.26) and memory address 02B1H (WordStar 3.30) were ones I was after. I returned them to their original state and left the other addresses as 01.

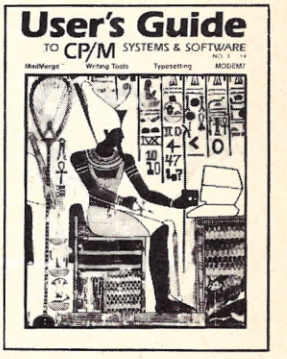
Carl T. Webster
Des Moines, IA

MBASIC to WordStar

The article "Print By Numbers" in

Continued on page 56

We Explain Software Packages, Then We Teach You How To Use Them. ***User's Guide*** is the Magazine of Tutorials.



"...worth more than it costs."
Jerry Pournelle, ***BYTE***

User's Guide® magazine helps you use CP/M® and MS-DOS® application software on your personal or multi-user computer. For the low cost of a magazine subscription ($21), you get six issues stocked with tutorials and software evaluations ($4.50 each on the newsstand). No fluff, just direct, readable "how to use" information for users of computers that run CP/M software.

If you have a CP/M or MS-DOS computer, you need to know where to find good software and accessories. ***User's Guide*** has in-depth evaluations of commercial ***and free public domain*** software, so that you can choose the best buy.

Don't spend hundreds on training packages. ***User's Guide*** teaches you how to use the most popular programs on the market, such as WordStar®, SuperCalc®, dBASE II® and Modem7. You learn at your own pace.

Editors Tony Bove and Cheryl Rhodes are the acclaimed writers of several computer books on CP/M and WordStar. Contributing editors and columnists include other great writers who use computers extensively, such as Arthur Naiman, Steve Rosenthal, Jonathan Sachs and Kelly Smith. The writing is crisp, intelligent and informative, without an overuse of jargon.

User's Guide also keeps up with the changing personal computer market, with informative articles about communicating with other systems and transferring programs and data.

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Media Master™

A program that reads, writes and formats more than 25 different types of disks.

Alex F. Burr

Media Master is a program that tries to be the universal disk translator between all microcomputers, and it makes a pretty good start at that large job.

Few users expect a program written in Pascal to be compatible with one written in BASIC. It comes as a surprise to some that a BASIC program which runs on one machine will not run on another.

However, many users are shocked when they find that a disk of WordStar files will not be accepted by a WordStar program on another brand of computer. Because different operating systems place information on a disk in different ways, this incompatibility is understandable, though regrettable.

Many computers are able to read a wide variety of disks. The Osborne Executive automatically recognizes different Osborne formats and adapts to them. It will even accept some non-Osborne formats. More and more computers are distributed with highly versatile format-translating programs. Media Master is one of these programs.

Version 1.01 of this program is designed for the Osborne 1 (double-density required) and the Osborne Executive. The disk contains two versions of the main program (37K) and a short document file (6K) containing the latest update information (repeated in the instruction manual).

Media Master is explained in a 16 page instruction manual, punched for a three ring binder. If the manual's clear instructions are followed, you shouldn't have any difficulty with this menu-driven program.

TABLE 1

Single Sided Formats Available

A. Osborne (DD)	N. NEC PC-8001A
B. Osborne (SD)	O. Actrix
C. DEC VT180	P. Cromemco w/Int'l Term
D. IBM PC CP/M	Q. Cromemco CDOS (SD)
E. IBM PC-DOS 1.0	R. Cromemco CDOS (DD)
F. IBM PC-DOS 2.0	S. Lobo Max-80
G. TI Professional CP/M	T. Morrow MD2
H. TRS-80 I w/Omikron	U. Kaypro II
I. TRS-80 III w/Mem Merch	V. Zenith Z90
J. TRS IV CP/M +	W. Heath Z100 CP/M
K. LNW-80	X. Heath w/ Magnolia
L. Xerox 820 I (SD)	Y. Systel II CP/M
M. Xerox 820 II (DD)	

Table 1. *Media Master reads and writes disks for these computers.*

TABLE 2

1. COPY files(s)
2. PRINT directory
3. DISPLAY directory
4. LOG in a new diskette
5. ERASE file(s)
6. VERIFY on write toggle
7. FORMAT a diskette
8. EXIT to CP/M

Table 2. *Media Master main menu.*

The version I tested permits you to format disks, read disks, and write disks which are written many different ways by different computers. The different computer formats the program reads and writes disks for are listed in Table 1.

Both of your drives will have free space available after the 37K program is loaded into memory. The second program on the disk places the formatting part of the main program in a separate file so that the most used part will fit in only 32K, in case you have reduced the available memory for some reason. You then insert any foreign disk into the disk drive.

Now you can do what you wish; format a blank disk for use in the other computer, copy your program and data files onto it for use elsewhere, read the directories of a foreign disk, print the directory for a permanent record, or just take files off the foreign disk and put them on your disks.

Of course the program can't do everything. The program translates IBM PC-DOS 1.0 and PC-DOS 2.0 but, because the Osborne drives are single sided, it is unrealistic to expect the program to cope with double-sided disks. The Apple system is so different that a translation cannot be made. Only some Radio Shack operating systems produce translatable disks. Of course, 8-inch CPM disks and the new plastic covered 3.5 inch Macintosh disks are incompatible.

Media Master is easy to operate. The instructions are clear and well written, but almost unnecessary, as the program comes with a well conceived menu system.

This program is a versatile disk formatting and copy program. When you insert into your computer a disk containing the Media Master program and a copy of your operating system and you type **MM**, the Media Master main menu appears giving you a choice of eight actions as shown in Table 2.

Most options are self-evident. The LOG in option (4) allows you to tell the program which foreign format your new disk has. VERIFY (6) compares the copy with the original to catch any errors.

The program is well designed. Helpful information about the format of the foreign disk and the amount of disk space available automatically appear on the screen at appropriate times.

If some keys are not part of a valid name for your foreign disk, the computer will not respond to them. The program is not proof against blunders, however. It is possible to lock your computer up if, for example, you forget to put in a disk, but almost the only way you can lose a file is to erroneously erase it.

Media Master works on both the Osborne 1 and the Executive. Of course, once a foreign file is read, there is no guarantee the program will run; but that is not the fault of this program.

I use the program most often to transfer files to and from IBM PC-type computers. Most IBM compatible computers will accept one of the two single-sided DOS formats made available in Media Master. If one doesn't work, the other usually will.

The Osborne computer's single-sided drives prevent the program from reading or writing double-sided disks. Also, not all IBM compatibles can be translated. Some 19 different IBM-type computers have been successfully tried out with this program. The early Sanyo operating system is one which failed, but new formats are constantly being added.

The program will not copy files which are not in the root directory of an IBM-type disk. You can tell by looking at the statistics presented with a directory list whether or not any subdirectories exist, but you cannot reach them.

I have found the program very useful because I have an Osborne Executive at home and an IBM PC at work. The program makes file transfers easier and convenient.

Before I got this program, I had to transfer my Executive files by modem to a mainframe computer and then later call them from the mainframe with a modem on the IBM. Now I prepare an IBM disk on my Executive and carry it in to the IBM PC. I can then bring the IBM disks back home and read the new files on the Executive.

Media Master is available for $29.95 from DG/Systems, 23145 Bigler Street, Woodland Hills, CA 91364, (818) 716-1655.

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Letters continued from page 50

the June/July 1984 issue was interesting. But does it work? I find that when I use MBASIC to write I can get the [Epson] MX80 [printer] to change [its typeface]. But once I [boot] WordStar in drive A, the MX80 goes back to Normal pica. Can you please explain to me or give me an address I can write to?

K.C. Lim
Pulau Pinang
Malaysia

MBASIC lets you send printer control codes directly to the printer. However WordStar controls the printer for you, and does not let you send the actual control codes to the printer; you must use WordStar's Print Control codes found in the Control-P menu. These WordStar codes may be used to switch typefaces, but only if you've patched WordStar to make use of the Epson codes.

*Patching WordStar is a complicated task. The First Osborne Group (FOG) publishes a newsletter (*FOGHORN*) and maintains a library of disks containing public domain software. On many of those disks are various text files explaining how to patch WordStar for Epson printers. Your best bet (since there are so many different WordStar patch files for Epson printers) is to order the catalog of public domain software from FOG. To get the catalog you must first join FOG. Send $24 for membership to FOG, P.O. Box 3474, Daly City, CA 94015. Send an additional $5 for the catalog.*

SuperCalc 2 on the Executive

In using SuperCalc 2 on my Osborne Executive I could not use the Execute command file to go to a different print mode, so I used the function keys. However, then it would always stay in the Setup mode of the Output command, and I wanted it to continue with more commands — to print out 2 copies of my report for one example.

I have found a way that works fine for me and maybe there is someone out there that would be interested in knowing about it. I simply start the function key command string with the Arrange command using an area that contains no information so as to not disturb anything in my report. Usually there are a few lines at the top or bottom of a report that can be used. This is the only way I have found to get out of the Setup mode other than by doing it manually. However, you are limited to 70 characters in your command string.

The following is a sample function key command string to print out 2 copies of the same report in compressed print and then return me back to my spreadsheet:

```
/ACB,5:8,AN/ODA1:Q54,SS^]⮌P⮌
    /ODA1:Q54,SS^]⮌P⮌
```

You could of course Zap completely out by simply adding /Z,Y or go on with other commands up to a total of 70 characters.

Hope this will be of help to someone.

P.S. — I almost forgot — for this to work, the L= (change page length) in the Setup mode must be set to 0 (continuous form). I changed mine to 0 as default with the INSTALLS.

Danny DeWitt
Hastings, NE

WordStar Patch Too Fast For Beginners?

I would like to inform you that the article in the November issue of *The Portable Companion*, by William Esteb entitled, "Faster Than a Shooting WordStar" is useful in speeding up WordStar using the Osborne Executive. Instead of using the DDT utility (which didn't come with the Executive) I experimented with the SID.COM utility. Making the same memory changes as described in the original article it appears that it works nicely. The modification drops about 6 seconds off of the boot up time. It also speeds up the access time for calling up different menus (i.e. ^J, ^K, ^Q, etc.). However, it accesses the menu so fast that I am unable to select the option for that menu before the list of options appear (i.e. when accessing the block menu, I can't get the D typed before the options list appears). I am using help level 3. Using help level 0 or 1, the menu access time is not noticed.

Steve Metcalf
East Moline, IL

Ed. note: To speed up the boot time without patching WordStar, you can press the space bar once as soon as the first WordStar sign-on message begins to appear on your screen, and WordStar will move on to the no-file menu.

Shortly after you type WS *and press Return, your screen goes blank, the disk drives start to whirr, and the MicroPro sign-on message starts to appear on your screen. Press the space bar as soon as you see the first word of this message, then type one of the single letter commands from the no-file menu (immediately following the space bar keystroke), and you'll save a significant amount of time.*

The quicker your keystrokes, the less you see of the sign-on message. Press space bar and D *to edit a WordStar document quickly — you'll find that WordStar is ready for you to type a filename. Do not press Return between the space bar and the letter of a no-file menu command (*D, R, P, Y *etc.). Press Return after the two keystrokes to return to the no-file menu (for example, if you press the space bar, but miss* P *and hit* O *by mistake, press Return).*

Not a Second Time

Considering the superior quality of issue 14 (Nov/Dec 1984), I'd like to send for a year's subscription but the last time I renewed, Osborne died, and in its re-incarnation sees fit not to honor the issues I'm still owed. I'm reluctant to make the same mistake twice.

But here's a bouquet, anyway. While most computer articles are basically babble, "Faster Than a Shooting WordStar" makes everything worthwhile. William D. Esteb is that rare breed, a technical writer who can communicate and after five minutes with his instructions, my WordStar booting pause, which, after three years must add

Continued on page 61

Processed Word

Sorting Notes

Using the Osborne special function keys and WordStar to keep sorted notes.

Madelon Mottet

Making related ideas seem logically and sequentially related is the task that confronts every nonfiction writer. The end product must appear logical even if the author's course took him along a random path of incomplete and conflicting sources. Collecting information is never neat and orderly. People get their facts when and where they find them, and they are thankful for any inspirations, no matter how out of order they occur.

Except for the rare person who can retain and manipulate a mass of information in his head, taking and sorting notes is an essential first step in the writing process. Until recently, I typed or wrote my notes on paper, and then sorted them by topic. It was an adequate system, and seemed much quicker and easier than extensive block manipulations with WordStar.

Then, a two-part article entitled "Practical Editing" (April/May and June, 1983 issues of *The Portable Companion*) described a system of sorting notes using the Osborne's Special Function Keys (SFKs). The SFKs transferred notes line by line into "Sorting Bins."

The idea was intriguing but I found it very inconvenient to use this system. For one thing, the maximum number of sorting areas was limited to seven. Moreover, most of the bins were labeled by numeric place markers (^K1 to ^K5), but place markers disappear whenever you leave the SORTING file. Consequently, at the beginning of each work session, one must find and reliable each individual bin.

Also, for multiline notes, transferring them line by line to a sorting bin was much slower than could be accomplished by doing block moves.

Finally, not only did the tool kit of editing commands use more than the 96 keystrokes permitted by my SETUP program, but I kept wishing I had some of the same SFKs I was used to using with my other versions of WordStar.

Nevertheless, the idea of using labeled "Sorting Bins" and the Special Function Keys to automate repetitive editing functions seemed to have potential. Using these basic concepts, I completely revamped the sorting tool kit, and developed a system that eliminates all of the problems I've mentioned and even has some added features. At least for me, I finally find that it is worthwhile to do my note sorting on the computer.

This system allows for an unlimited number of sorting bins, and the bins can be labeled with numbers, names, or even phrases. The name for each bin becomes a permanent part of the SORTING file, and new bins can be interspersed with those already existing whenever the need arises. Also, when a note can be used in more than one category, it can be copied into any number of bins. Finally, the system organizes and keeps track of the bin names, and if you didn't have an outline when you started, it can automatically construct one when you finish.

Special Function Keys

A summary of the Special Function Keys for sorting notes is shown in the accompanying table. Only keys 1 to 5 are actually involved in sorting. Number 6 is optional and is used to list the bin names or to construct outlines. The other four are my own personal favorites.

To define the Special Function Keys, put Osborne's SETUP.COM program in the A disk drive and an unprotected copy of WordStar in the B drive. From the A drive, run the SETUP program. (One way to do this is to hit RESET, then Return and when the Help Menu ap-

pears hit ESCape. Wait a few seconds for CP/M to run and then type SETUP and press Return.)

This will give you a screen showing the Configuration Program. Type E, and you will see a screen of the Function Keys only. Type 0 (zero) followed by ^Q^Q^B1, then hit the ESCape key twice. Either small or capital letters can be used. The key menu will show the changes you have made (see accompanying table).

Any letter following the control symbol (^) is automatically changed to a capital letter. Continue changing the rest of the numbered keys. As you finish with each key, press ESCape twice. When you are finished all the definitions, press Return twice.

You will then be asked which disk should be configured. Type B. The information will be written into the CP/M portion of the WordStar disk. Before using this adapted WordStar disk for the first time, hit RESET to erase the CP/M commands that are already in the computer's memory.

Taking Notes

Notes are taken conveniently in paragraph form with blank lines between each. The notes can be any length up to about 14k. (This is approximately the maximum length of block which can be moved at one time using WordStar.) If desired, sorting and bibliographic information can be put at the end of each note.

To set up your sorting categories, choose any symbol that does not occur in your notes. For me this would be @, but other good choices could be #, &, or ^.

Each name or phrase for a sorting bin is put on its own line, and a blank line separates each category. Bin names are preferably written with capital letters to distinguish them from notes, but small letters could also be used. Precede the most important word or words of each bin with your chosen bin symbol. If you use the symbol several times in the same line, you will have the option of later referring to the sorting bin by different names. If you're really organized, you can name the bins using an outline as suggested by the following example:

```
I. @INTRODUCTION
II. @SPECIAL FUNCTION KEYS (@SFKs)
    A. @SORTING
    B. @OUTLINING
III. @DISKETTE AND @MEMORY LIMITATIONS
IV. @TYPING NOTES
```

Keep a copy of the outline at the end of the SORTING file to refer to whenever you need to refresh your memory about the names of existing sorting bins.

Manipulating Notes

The bins are always put at the beginning of the file, with the unsorted notes following. To sort, put the cursor at the beginning of the note and hit ^1. This marks the beginning of the block, and puts in a numeric place marker. The dimmed symbols ⟨B⟩⟨1⟩ will show on the screen. If you inadvertently hit the ^1 key when the cursor is in the wrong place, move to the correct location and hit the ^1 key again. The dimmed symbols will be automatically moved. (If you need to get rid of the dimmed symbols entirely hit the ^1 key twice in succession without moving the cursor.)

Move the cursor to the beginning of the blank line following the end of the note, and hit ^2. This marks the end of the block, initiates the Find Function, and types @ (the symbol indicating a bin name). Type in the name you have selected for your bin. You can shorten the title to the first few letters in the name as long as these are not also in other bin names. You can use either capitals or lower case letters.

The ^3 key completes the Find Function and positions the cursor for the block move. The first return ⟨CR⟩ indicates to the computer that you have completed typing in the bin name; b makes the search proceed backwards through the file; u allows the use of either capitals or lower case letters; the second ⟨CR⟩ means that all Find Options have been selected, and the cursor then moves up through the file to the selected bin name. ^Qd moves the cursor to the end of the line, and the final ⟨CR⟩ drops the cursor to the next line and makes a blank line for the note.

Either ^4 or ^5 actually moves the note. Use ^4 if you are moving the note into a single bin and ^5 for copying into more than one bin. The ^4 key moves the marked note up to the line below the appropriate bin. ^Kv moves the note; ^Kh removes the dimmed lettering of the marked block; and ^Q1 moves the cursor back to the numeric symbol which marks the location of the next note to be sorted. Finally, ^K1 eliminates the numeric

Special Function Keys

```
Key ^0 = ^Q^Q^B1
Key ^1 = ^Kb^K1
Key ^2 = ^Kk^Qf@
Key ^3 = ⟨CR⟩bu⟨CR⟩^Qd⟨CR⟩
Key ^4 = ^Kv^Kh^Q1^K1
Key ^5 = ^Kc^Q1^Qf@
Key ^6 = ^Qf@⟨ESC⟩^Qs^Kb^Qd
^Kk^Qc^Kc
⟨CR⟩^Qv
^X⟩^Kh
Key ^7 = ^Ks^Qp
Key ^8 = ^Kp
Key ^9 = pip a:=b:
```

The symbols ^, ⟨CR⟩, and ⟨ESC⟩, stand for Control key, Return key and ESCape key, respectively. (A number "1", not a letter "L", follows ^B, ^Q, and ^K.)

Special function keys for sorting notes.

place marker.

In summary, to move a note into a single bin, put the cursor at the beginning of the first note and hit ^1; then move the cursor to the end of the note and hit ^2; type the name of the bin, and hit ^3 followed by ^4. (If you never need to make duplicate copies of notes, the code on the ^4 key could be combined together on the ^3 key. In this case you would only have to use the ^1, ^2, and ^3 keys.)

The ^5 key for making multiple copies operates differently. Mark the beginning and ending of the note in the normal way using the ^1 and ^2 keys. In response to the FIND? question, type the name of the first bin into which you want the note copied. Then hit ^3 to position the cursor below the appropriate bin, and hit ^5 to make a copy of the note.

The ^5 key also initiates another FIND? search. Answer with another bin name and hit ^3 to position the cursor. Continue alternating between the ^3 and ^5 keys until the note is in all of the appropriate bins. In reply to the unnecessary last FIND? question hit the ESCape key. The original note remains in the unsorted section and requires manual line-by-line removal (^Y).

The ^5 key uses the ^Kc function which makes a copy of a note instead of moving it. Whenever it is invoked, the original highlighted note stays intact while a copy is made below a bin at the new cursor position. The highlighting moves to the copied note. (The note remaining in the unsorted area is no longer highlighted, which is the reason it cannot be conveniently removed using the ^Ky command.) ^Q1 moves the cursor back down to the unsorted notes and allows the succeeding bin name search to proceed backwards through the file. Since the Search Function can only move through the file in one direction per search (either backwards or forwards), it is not appropriate to begin a search from within the bin section of the file. This is because the next bin to be searched could be either above or below the current position of the cursor.

I should note here that since you are using the Find Function (^Qf) to search for each sorting bin, you may find it convenient to toggle the justification feature off (^OJ). This is because during justification, microspaces are inserted between words. When searching for a bin with a multiple-word name, the search will not work if the amount of space between words is not identical.

Actually, I always find the justification feature inconvenient because I can't tell if there are any accidentally inserted spaces between words. I've used the INSTALL.COM program to set the default so that WordStar boots up with this feature turned off (*The Portable Companion* April/May, 1984, p. 58; Dec.1982/Jan. 83, p. 86.)

The ^6 key can be used to keep track of bin names, and depending on how orderly you have been, it will construct outlines.

When I sort notes, I keep adding new categories, and intersperse bins among those that already exist. After numerous alterations have been made in the bin system, I need to make an updated list of bin names. I keep this list at the very end of the SORTING file so I can quickly check the current listing of category names.

Updating is done using the ^6 function key. Go to the beginning of the file and hit ^6 four times, and the first four bin names will be transferred to the bottom of the file. Because of the long string of commands on this key, you can only transfer a few lines at a time without overloading the system and getting a ringing bell. When the computer completes this operation, hit ^6 four more times, and continue until all of the categories have been transferred to the end of the file.

The ^6 key is programmed to search for a line which contains the symbol @ (^Qf@⟨ESC⟩). It then jumps to the beginning of that line (^Qs), marks the beginning of the a block (^Kk), jumps to the end of the line (^Qd), marks the end of the line with a block marker (^Kk), moves the cursor to the end of the file (^Qc), copies the marked line (^Kc), puts a blank line under the copied line ⟨CR⟩, returns to the previous position in the file (^Qv), drops down a line (^X), and hides the block markers (^Kh).

The Optional Functions

Following is a brief explanation of the remaining, optional SFKs. ^0 reformats a file. ^7 saves the file and returns the cursor to the position where you were working. ^8 prints from within a file. ^9 is for making back-up copies of files after leaving WordStar (^Kx or X).

(To use the PIP A:=B: ↵ command, remove the WordStar disk from the A drive, and put in the backup disk. Hit ^C to introduce the new disk, and when the ›A symbol appears, type ^9 and the name of the file you wish to copy from the B to the A disk.)

Of the optional keys, I find the ^8 key (^Kp) the most essential. Because I almost invariably need to correct mistakes I notice when printing, I like to do my printing from within the file. When ^Kp is hit during printing, WordStar proceeds to the end of the line before stopping. The problem is that when WordStar is printing, it only periodically accepts commands from the keyboard. If the timing of the command is wrong, it is completely ignored.

Since printing may continue for a short time even if the command is accepted, it is difficult to tell whether the command has been received or not. If you assume that the command has not registered (and hit the command again) and in fact it has, you inadvertently reactivate the printing function. (To my way of thinking, getting printing to stop is the most frustrating part of using WordStar.)

During printing, the single command ^8 is recognized much more reliably than the multiple-key command ^Kp, and the problem of non-registering commands is largely eliminated. I use the ^8 key once when I want to stop printing in the middle of a page, and twice in succession when printing is already halted because of a page break.

Disk and Memory Limitations

Though WordStar can theoretically process all the notes for very long writing projects, the limited space on the Osborne disks leads to a number of practical problems. When using files that are 22K or less in length, WordStar requires three times the file length on the disk (one length for the file, one for the backup, and one for the temporary file that is made during the save operation). When the file is longer than 22K, it can

no longer be held entirely in memory, and WordStar may require that the data disk have space up to four times the length of the file. Thus, at least with a single-density Osborne disk, a 22K files is the upper maximum for the length of the SORTING file.

To keep track of the number of K (kilobytes) in the SORTING file I generally work with the page break toggled off (^OP). In this mode, the abbreviation FC (File Count) appears at the top of the screen. This indicates the number of bytes at the current cursor position, and moving to the end of the file (^Qc) gives the total number of bytes in the file. (A number like FC=8325 means that the file is 8.325K long.)

Whenever the SORTING file gets close to exceeding the maximum length permitted by the disks, notes from one or more bins need to be transferred to another file. Mark the beginning and end of the block to be moved and write it to another file using ^Kw. You can send the notes to either the A or B drive. Except for very short projects, the disk with the SORTING file fills up quickly, and you will need to transfer the material to another disk.

To accomplish this task without having to leave WordStar, I move a large block (up to about 14K) of information to the A drive which contains Wordstar (^Kw a:notes ↵ ; the a: specifies that the block is to be transferred to the disk in drive A.) With a single density disk there is room for transferring blocks of information up to 20K in length as long as you erase all the extraneous files on the WordStar disk and leave only WS.COM (14K), WSMSGS.OVR (26K), WSOVLY1.OVR (28K), and AUTOST.COM (2K). I also like to put XDIR.COM (4K) on the WordStar disk, so I am restricted to moving a total of of 16K to the WordStar disk.

After writing the block to the disk in the A drive, erase the marked block from the SORTING file (^Ky). You could, of course, go through the copied section and and delete all the notes under each individual bin name. Generally, however, I find it more convenient to immediately erase the whole marked block. Then I go to the outline at the end of the file and mark as a block the section of bin names that were deleted, and copy the bin names back into the appropriate place in the file.

Later when you want to transfer material from the WordStar disk to an empty disk, save and exit from the SORTING file (^Kd); put the new disk in the B drive and use the Copy option (O) from WordStar's Main Menu.

When asked the question Copy what?, type TEMP ↵ (short for "temporary"). To the question Copy to what?, use any valid name (such as SORTED-1, SORTED-2), but make sure that you proceed the name with a b: (e.g. b:SORTED-1) to indicate that the empty disk is in the B drive. Unlike using the PIP command from the CP/M system for moving files, Wordstar's copy command automatically logs in the new disk.

I always call my temporary file on the WordStar SORTING disk "TEMP" so I always know the name of this file. As everything I ever send to the A drive goes into this single file, I always know how much space is available on the A drive. When you are working with a file in the B drive and find that you have exceeded the limits of your usable disk space during a SAVE operation, it's very reassuring to know that your excess material can always be marked as a block and sent to the TEMP file on the WordStar disk.

Though you can always find out the names of the other files on the currently logged disk (usually the B drive) while inside a file using the ^Kf toggle, you won't find the names of the files on the other disk. Remember, though, that every time you overwrite a block onto the a:TEMP file, it erases everything that was in it previously. This means you never need to manually erase this file, but you do need to be wary. Always copy the contents of an a:TEMP file onto another disk soon after you write a block of information into it. With my fallible memory of the contents of files, I always make the copy before ending my current work session.

Eventually you will want to combine all of the notes on a particular topic into one file. I think the most convenient approach is to break a file of sorted material (e.g., SORTED-1), which is now on a disk in the B drive, into smaller files — one file for each bin using ^Kw. Then read (^Kr) these short files into appropriate sorted topic files.

Why Type Notes?

For people who usually take notes in longhand, typing the notes into the computer in the first place may seem cumbersome. Actually, however, anyone who types faster than about 15 words a minute (and this includes many two-finger typists), gains by typing their notes. People can only write by hand a maximum of about 20 words per minute, and such script is nearly illegible. Typed notes, no matter how sloppy, are a lot easier to read than hurried script.

Also, since typing notes doesn't require great accuracy, it's an opportunity to work on increasing typing speed. Since I type about four times faster than I write, my typed notes tend to be much more comprehensive.

Besides speed, there are other advantages to typing notes. Tables, numbers, names and technical terms will not have to be recopied later into the final manuscript, and this should reduce copying errors. Also, keeping track of bibliographic information is simplified. When taking notes from a source, first type all the bibliographic information and mark it as a block. Then, when you finish typing each note, type ^Kc and all of the bibliographic information will be added to the end. Later, when you sort the notes, all of the information will remain with each note. In the early drafts, this reference material can be kept conveniently at the ends of the appropriate paragraphs.

For people who can't or don't want to learn to type, there is still hope. The price of optical character readers is falling. For example, the Omni-Reader (Oberon International, Suite 630, LB48, 5525 Mac-Arthur Blvd., Irving, TX 75062) now retails for under $500 and can scan text lines interpreting most popular type fonts. Surely someday soon such wonders will work with the Osborne.

A minor problem I find in typing notes is that since both hands are on the keyboard, I need weights to hold books open which don't lie flat by themselves. I use flexible book weights made by sewing two circular pieces of strong, rough-tex-

tured fabric or leather together making a bag four inches in diameter. Each is filled with a pound of gun BB's.

As a corollary to typing notes, it's necessary to have something to type them on, and at least in some cases the Osborne is welcome where a typewriter is not. My Osborne, though not really as quiet as I would like, has often been used in libraries. It may be a bit of trouble lugging the computer to the source of the notes, but at times that easily beats hauling a dozen heavy tomes home. Of course the ultimate for such situations would be to have a small, lap-sized computer for note taking. Note files could later be transferred to the Osborne for more convenient sorting and editing.

The most serious drawback to using the computer is that it (or a power source) cannot always be with me. One fall-back position is a portable tape recorder. Otherwise, we're back to that archaic technique of word processing — pencil and paper. ◘

Letters continued from page 56

up to hours, is cut to nil. I plan to try his patch on my office Kaypros where the pause is outrageous.

I admit to having Kaypros, a II and a Four. I'd been about to buy another Osborne when the company went belly up and needing support, I couldn't chance orphans. The Kaypros do their job, but aren't Osbornes, I can tell you. I hope you're right in predicting a renaissance for CP/M, and a market for the Vixen, which, had it come out when originally planned, would have made me a three-Osborne person and taken the market by storm.

I hope that the new Osborne Corporation avoids marketplace mistakes although I think it made one in not honoring the old subscriptions to *The Portable Companion*. I realize that it is running lean and managing for cashflow, but it would have been an inexpensive gesture of faith to thousands who already have a bond with the product.

If *The Portable Companion* were not tied to the fate of the Osborne Corporation and you could guarantee one article per issue half as useful as that by William Esteb, I'd risk another $25 anyway. Let me end with a query: has William Esteb written any books?

Stuart Hodes
New York, NY

Hold That Patch

I appreciate the November issue of *The Portable Companion* the subscription department sent me. I have tried two of the patches suggested in the articles and have had problems with both of them. The first was the Osborne 1 WordStar 3.30 patch in William Esteb's article on page 64. **Warning to beginners**: don't use the patch until you have mastered WordStar well enough to turn the help levels down to 1 or even 0. Otherwise the help menus come up so fast that you can only input one control character at a time, making file closing (^KD), block movement (^KV), or any other two letter function very slow and aggravating. Try it with the help level set to 3, and see what I mean. The speedup is fine for advanced WordStar users who don't need the help menu, but if you do, don't make the patch!

The other problem I had was a minor one with the dBASE II patch on page 23. If you have an 80 column screen (as I had installed back in early 1983), and you use this patch, some of the on-screen displays (I haven't counted, but I think they are slightly over 80 characters per line) that you have instructed the program to print using the @ command will bleed annoyingly over onto the next line, where before they would fit on one line and be quite legible. The patch does eliminate the screen's annoying jumping back and forth when writing command files or long instructions, but I haven't made up my mind whether the elimination of one annoyance is worth reformatting many of my screen display instructions (the printer is not affected).

One other question. I want to join the wide world of computing and drive up my phone bill outrageously by getting a modem. What do I need and how do I do it (persons answering this must assume I know absolutely nothing about modems or any supporting software or hardware beyond knowing that a phone line is somehow necessary)? Is that what the COMM PAC is? Do I need anything else?

Michael D. Osborn
North Platte, NE

Tips From DEFOG

Since *The Portable Companion* has been such a tremendous help in furthering my experiences with the Osborne 1, I wish to take some time to share a few of my findings.

The November 1984 issue on page 65 describes "Speeding Up WordStar 3.30." After making the suggested modifications, I tried the two different versions, and the new version was 6-10 seconds faster booting WordStar. The article mentions, "most commands from the main menu will execute faster too." This appears true when I took a quick "look-see" test. Then, the next day I had a four page plain and simple document

Continued on page 69

CalcAids

Financial Ratios

A SuperCalc worksheet for investigating and analyzing a company's financial condition.

William Roberts

When I purchased a copy of *Practical Pascal Programs* by Greg Davidson, I found a program listing for Financial Statement Ratio Analysis. (This same program is available in *Practical BASIC Programs* by Lon Poole.) I decided not to bother typing in this program, because I already had been doing the same analysis using SuperCalc for more than a year. What's more, the SuperCalc worksheet is easier to set up, check out, and use than the Pascal or BASIC programs.

Another problem with using Pascal is that the arithmetic is done using binary numbers. This can lead to rounding errors that are at best unexpected. SuperCalc does all its arithmetic using decimal numbers, just like you do with your calculator.

In this article, I present my finance ratio worksheet and explain how to use it. It should prove to be a useful tool for anyone who is investigating the financial condition of a company. The advantage of the SuperCalc worksheet is that it is easy to modify for your special needs. Try some quick changes on a BASIC or Pascal program and you will see what I mean.

What are Financial Ratios?

Financial ratios are used to make sense of the financial statements put out by companies. A company may look good because it has done $10 million in business this year, until you find out that it spent $9,950,000 to make it. Another company has $2 million in short term debt. Of course, this doesn't look so bad after you find that they have $3 million in cash and $5 million in accounts receivable. But wait, that $5 million in receivables is based on yearly sales of $10 million. This company either takes a long time to collect its debts (six months), or is not writing off its bad debts.

What all this proves is that any one figure on the balance sheet does not mean much. It must be taken in relation to all the other figures. The financial ratios used here will allow you to make some comparisons between the numbers. And since they are ratios, the comparisons between large companies and small ones is more meaningful.

Each of the ratios calculated by this program is described briefly in the following paragraphs. If you want more detail for each ratio, go to the references in the bibliography at the end of the article, or to some other text book on financial analysis.

Liquidity Ratios

Liquidity ratios give an idea of how well a company can meet its debts. In general, the company must have sufficient assets to meet all current and future debts. If the firm has little or no debts, then management is using only the equity to meet needs. This means that they are not using any leverage to make money for the stockholders.

The Current Ratio is the ratio of current assets to current liabilities. It gives a rough idea of how well the company can meet its obligations for the next year. If the current ratio is high, the company has (or expects to have) the cash to meet its obligations over the short term. If it is low, the company may run into problems. If the ratio is less than one, the company may already have serious problems.

The Quick Ratio is an even more stringent test of the company's ability to meet its short term debts. It is often

called the acid test. This is the ratio of the current assets, not counting the inventories, to the current liabilities. It shows the ability of the company to pay off its short term debt without having to sell any of its inventories. This ratio will be of real interest to those of you who followed the problems of Osborne Computer Corporation.

The Operating Ratio is the ratio of current assets to the total debt of the company. It shows what would happen if the company had to meet all its debts and could not convert any of its fixed assets to cash.

Asset Management

The second group of ratios is the Asset Management ratios. These ratios give some idea of how well the management of the company is using the assets of the company.

Inventory Utilization shows how fast the inventory turns over during the reporting period. One thing you must consider when using this number is that the cost of the items in inventory is usually at cost, while sales are at market price. In other words, you are using two different measures of value. To solve this problem, you may want to use the Cost of Goods Sold instead of sales. Another problem is that the inventories may have some seasonal problems. For example, if you were investing in a company that made swim suits, the inventories would be very large in the spring, and (hopefully) small in the fall.

Fixed Asset Utilization gives an idea of how well the management is using the fixed plant and equipment of the company. It shows how fast the assets of the company "turn over." The faster the turnover, the better the use of the assets.

Total Asset Utilization is similar to the fixed asset utilization, except that it uses the total assets of the company.

The Average Collection Period is the average number of days the company must wait after making a sale before collecting its money. As a general rule, a company wants this period to be as short as possible. If the period is abnormally long, the company may be carrying a lot of bad debts on its books.

```
   ¦ A ¦¦          B          ¦¦     C    ¦¦     D    ¦
 1¦Financial Ratios
 2¦
 3¦Miscellaneous Data
 4¦
 5¦Number shares common          50000000
 6¦
 7¦Number shares preferred              *
 8¦
 9¦Dividends paid - Common           2.00
10¦
11¦Price of Common stock            28.50
12¦
13¦Price of Preferred stock            *
14¦
15¦All dollars times              1000000
16¦
17¦
18¦
19¦
20¦Enter =A22 to start Balance Sheet
```

Figure 1. *Worksheet for miscellaneous company information.*

```
   ¦ A ¦¦          B          ¦¦     C    ¦¦     D    ¦
22¦Balance Sheet - Assets
23¦
24¦Current Assets
25¦      Cash                        50
26¦      Marketable Securitie         *
27¦      Accounts Receivable        350
28¦      Inventories                300
29¦      Other Current Assets         *
30¦      Total Current Assets                    700
31¦Fixed Assets
32¦      Plant and Equipment       1800
33¦         less Depreciation       500
34¦      Other Fixed Assets           *
35¦      Total Fixed Assets                     1300
36¦Total Assets                                 2000
37¦
38¦
39¦
40¦
41¦Enter =E22 to start Liabilities
```

Figure 2. *The assets portion of the Balance Sheet.*

Debt Management

The Debt Management ratios show how well the company's management is using financial leverage in running the company. If the company is using too much borrowed money, the creditors are bearing a lot of risk in the company. They will then raise the interest rate the company must pay. If the debt is too low, the stockholders are bearing all the risk. With additional borrowed money, the company might earn even more. When the economy is expanding, low debt companies do not earn as much. When the economy is bad, the high debt com-

	E	F	G	H
22	Liabilities			
23		Accounts Payable	60	
24		Notes Payable	100	
25		Accrued wages	10	
26		Accrued taxes	130	
27		Other Current	*	
28				300
29	Long term liabilities		800	
30	Other Liabilities		*	
31	Total Liabilities			1100
32				
33	Equity			
34		Common Stock par	50	
35		Preferred Stock par	*	
36		Paid in capital	100	
37		Retained Earnings	750	
38		Total Equity		900
39				
40	Liabilities plus Equity			2000
41	Enter =A42 for Operating Statement			0

Figure 3. *The liabilities portion of the Balance Sheet.*

	A	B	C	D
42	Operating Statemen			
43			Amount	% Sales
44	Sales and revenues		3000	100
45	Other Income		*	0
46	Total Income		3000	100
47	Cost of Goods Sold		2544	85
48	Gross Profit		456	15
49	Operating Costs		190	6
50	Net Operating Income		266	9
51	Interest Expense		66	2
52	Earnings before tax		200	7
53	Taxes		80	3
54	Income after taxes		120	4
55	Dividends pd (Preferred)		*	0
56	Available for Equity		120	4
57	Dividends pd (common)		100	3
58	Add to Retained Earnings		20	1
59				
60	Enter =E42 to go to Ratios			
61				

Figure 4. *The Operating Statement.*

pany is in a risky position.

The Total Debt to Total Assets shows what percent of the company assets are provided by creditors. If this number is too high, the creditors are not going to want to invest any more, and the company may have trouble borrowing. If it is too low, the company is using only the stockholder's money in its business, making it a good target for a takeover.

Long Term Debt to Net Worth is similar to Debt to Assets, but compares the debt to the stockholders equity. It shows how much of the company is financed by long term creditors compared to the amount provided by the stockholders.

Times Interest Earned shows how well the company is able to meet its interest on debt. The higher this number, the greater the margin of safety on interest payments. Missing interest payments (especially on long term debt) will often force a company into bankruptcy.

Profitability Ratios

Profit is what running a company is all about. These ratios give some idea of how well the company is doing in general.

Profit Margin is the percent of the sales and revenues of the company after the expenses are paid. Naturally, all companies want this figure to be as high as possible.

Return on Assets is the percent return the company is earning on all the assets owned by the company. This shows how well the company is doing with the money under their control. Naturally, the company wants this number to be as high as possible. If the return is too low, the management might do better putting the money in the bank.

Return on Equity is the percentage return on the funds invested by the stockholders. This is an important factor if you are planning to buy stock in the company. Could the company do as well by just putting the money in a bank?

Market Value Ratios

Market Value ratios indicate what *other investors* think the stock of the company is worth. They are all based on the price of the stock.

The P/E Ratio is the Price/Earnings ratio. It is how much investors are willing to pay for one dollar of the company's earnings. The higher this ratio, the more valuable investors feel this stock is.

The Earnings Yield is the percentage return of after tax earnings based on the price of the stock. It is the P/E ratio expressed as a percentage return.

The Dividend Yield is the "interest rate" that is paid to a stockholder in the form of dividends from the company. This figure is very important to someone who is investing for current income as opposed to growth.

The Price/Book Ratio tells how much

investors will pay for ownership of one dollar of the company's property.

Altman Z-score

In addition to calculating the ratios, this worksheet will also calculate the Altman Z-score. This is a number calculated from financial statement data which gives a probability of bankruptcy within the next two years. If the score is less than 1.81, there is a good chance that the company will go bankrupt within the next two years. If the score is over 2.99, the chance of bankruptcy is very small.

If you wish to know more about the Z-score, see Altman's paper "Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy" in the September, 1968 issue of *Journal of Finance*. The version used in this worksheet is from the description in Brigham's book cited in the bibliography at the end of the article.

Data Needed to Compute Ratios

The data needed to compute the ratios are available from the company's yearly financial reports, plus the current price of the stock from the daily newspaper. The first part of the worksheet needs some information such as the number of outstanding shares, current stock price, and a few other values. Then you must enter some data from the company's Balance Sheet and Operating Statement. Once the data is entered for these two reports, the ratios will be calculated.

Every company has its own format for the Balance Sheet and Operating Statement, but they all contain pretty much the same data. So what we must do is set up reports that contain the important data, and enter the correct figures from the company's report.

Figure 1 shows our first SuperCalc worksheet with miscellaneous company information. We will build the worksheets shown in Figures 2 and 3 for our balance sheet, and the worksheet in Figure 4 for the operating statements.

With a blank worksheet, the values you must enter are indicated with an asterisk (*). The values indicated with a zero are calculated by SuperCalc. The figures are shown with values filled in. When you finish building your worksheet, you can check it by entering the values shown. The figures shown are from an example in *Financial Management, Theory and Practice* by Eugene F. Brigham which is cited in the bibliography.

Quite often, you will have to make some decisions as to where a certain figure goes on the worksheet. For example, you may find a figure for Deferred Income Taxes under the current assets. This would be added to all the other current assets you cannot categorize in a line for "Other Current Assets".

Setting Up the Worksheet

In the instructions that follow, I use ^E, ^X, ^S, and ^D to indicate up, down, left, or right arrow. I use ⮐ to indicate that the Return key is to be used. You should type exactly what you see here, and nothing else.

There are two ways to set up the worksheet. First, you may load SuperCalc and enter the commands directly. Then, when you are done, you save the (blank) worksheet. Or, if you have SuperCalc version 1.12 or SuperCalc 2, you may enter the instructions with WordStar, using the Non-document mode. When you need a worksheet, create a new one with the eXecute command (/X). The Wordstar text file takes up less disk space than the Supercalc file, but takes longer to load from disk. The commands given here are all compatible with version 1.05 of SuperCalc. If you have version 1.12 or Supercalc 2, you may want to use the more advanced features, especially the user defined formats of SuperCalc 2.

This worksheet is set up for a 52 column screen. If you wish to use 80 column, you will have to fix all the commands which place displays in column E through H. You can do this in one of two ways. Either change all the commands which use column E to G, F to H, G to I, and H to J; or create the worksheet as I have described it, and use the /Move command.

1) `/ZY''Financial Ratios⮐`

This command will clear the old worksheet (if you have one) and set up all the default values. It will then write a heading to describe what this worksheet is. I find this is quite useful when I use the SuperCalc directory displays.

When you fill the values in for a company, put the company name in cell A1.

2) `^X/FGI11⮐`

(^X stands for Control-X). Most of the data is entered by columns. So we start the cursor moving down. If you are setting up an ".XQT" file for SuperCalc 1.12 or SuperCalc 2, use a lower case v for the ^X, Next set the default values to display integers. We want the default column width to be 12 characters.

3) `/GM/GC`

Set the manual calculation mode on. We don't want the sheet to recalculate every time we make an entry, at least while we are building the sheet. Since most of the data in this worksheet is organized by columns, set the column calculation mode on.

4) `/FCA,5⮐`
`/FCB,20⮐`

Set the width of columns A and B. These columns will ultimately be the headings for the Assets portion of the Balance sheet, and the headings of the Operating Statement.

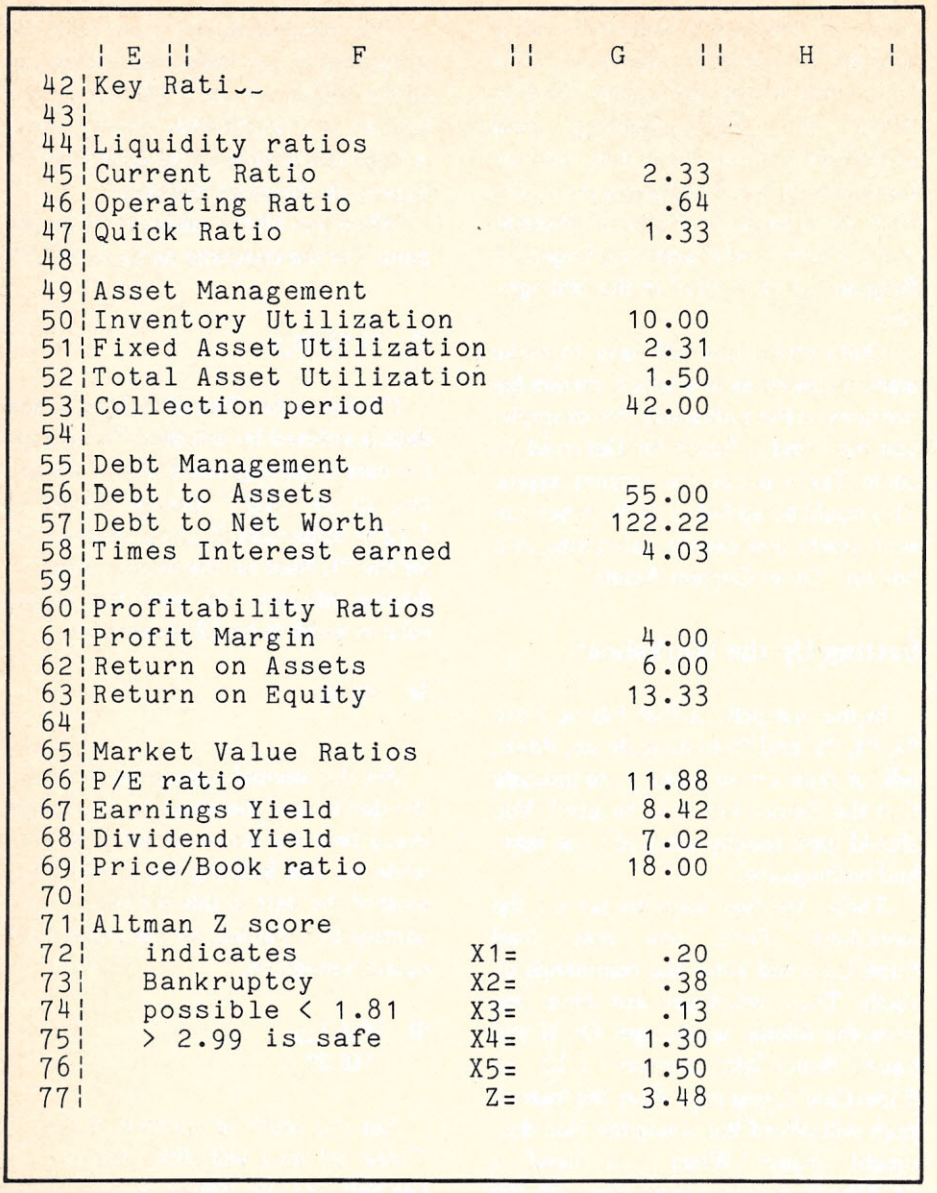
5) `/FCC,TR⮐`
`/FCD,TR⮐`

Set columns C and D for text right.

6) `/FCE,5⮐`
`/FCF,20⮐`
`/FCG,TR⮐`
`/FCH,TR⮐`

Set up columns E, F, G, and H just like A, B, C, and D. These columns will contain the Liabilities and Equity portion of the Balance Sheet and the Ratios. These commands will have to be changed for 80 column display.

7) `/FEG45:G78,$⮐`



	E	F		G	H
42	Key Ratios				
43					
44	Liquidity ratios				
45	Current Ratio			2.33	
46	Operating Ratio			.64	
47	Quick Ratio			1.33	
48					
49	Asset Management				
50	Inventory Utilization			10.00	
51	Fixed Asset Utilization			2.31	
52	Total Asset Utilization			1.50	
53	Collection period			42.00	
54					
55	Debt Management				
56	Debt to Assets			55.00	
57	Debt to Net Worth			122.22	
58	Times Interest earned			4.03	
59					
60	Profitability Ratios				
61	Profit Margin			4.00	
62	Return on Assets			6.00	
63	Return on Equity			13.33	
64					
65	Market Value Ratios				
66	P/E ratio			11.88	
67	Earnings Yield			8.42	
68	Dividend Yield			7.02	
69	Price/Book ratio			18.00	
70					
71	Altman Z score				
72	indicates		X1=	.20	
73	Bankruptcy		X2=	.38	
74	possible < 1.81		X3=	.13	
75	> 2.99 is safe		X4=	1.30	
76			X5=	1.50	
77			Z=	3.48	

Figure 5. *Key financial ratios.*

Set the format of the area that will hold the ratios. If you have SuperCalc 1.05 or 1.12, this is the only way to set up a fixed number of decimal places. Fixed decimals places look much nicer when printed out. With SuperCalc 2 you can use the user defined formats to set the number of decimal places you want. You can also set up the percentages to display as percentages without multiplying by 100.

We now have the worksheet set to the proper widths and display modes. Now we can begin to build the headings and formula we will need to complete the job.

In general, we enter the headings in column A, B, E, or F; then go back and put in asterisks where data is to be entered. The data is usually entered in columns C or G. The results are usually calculated in columns D and H.

8) `=A3↵`
`''Miscellaneous Data↵↵`

Start the headings for Miscellaneous Data. Notice that we used two Returns (↵↵). In fact, we will use two returns for every entry in this section.

9) `''Number shares common↵↵`

This entry will be the number of common shares outstanding. It does not include any shares held as treasury stock.

10) `''Number shares preferred↵↵`

Enter the number of shares of preferred stock.

11) `''Dividends paid - Common↵↵`

The value entered will be the dividend paid for each share of common stock.

12) `''Price of Common stock↵↵`
`''Price of Preferred stock↵↵`

This is the price of the common stock from the daily paper.

13) `''All dollars times↵`

Any one figure on a balance sheet doesn't mean much. It must be taken in relation to all the other figures. The financial ratios used here will allow you to make some comparisons between the numbers.

Many companies give their financial reports with all figures times $1000 or even $1,000,000. This figure is needed here to adjust the figures for some ratios. Notice in step 17 that we set this figure to 1.

14) `=C5↵`
`''*↵`

Mark where the first entry is to be made.

15) `/RC5:C12,C7↵`

Set asterisks where data is to be entered for all the miscellaneous values. We only put in one asterisk, then use what is called a "ripple move" to put in several asterisks.

16) `/FEC9:C13,$↵`

Since these cells will take a dollar and cents value, set them to show dollars.

```
17) =C15↵
    1↵
```

Enter a one for all dollars times value. If you think that 1000 or 1,000,000 is a better choice, you may substitute that value.

```
18) =A20↵
    ''Enter =A22 to start Balance Sheet↵
    =A1↵
```

This will tell where to find the next screen to be entered. The screen should now look like figure 4, with the cursor in cell A1. If you are preparing an ".XQT" file, you may want to include an ampersand (&) here, to stop the input so you can check the screen.

Now we will begin to build the assets portion of the Balance Sheet.

```
19) =A22↵
    ''Balance Sheet - Assets↵↵
```

Move the cursor to the new screen, and place the heading.

```
20) ''Current Assets↵
```

Enter heading for current assets in column A.

```
21) =A31↵
    ''Fixed Assets↵
```

Enter heading for fixed assets further down the page.

```
22) =A36↵
    ''Total Assets↵
```

Set up the total assets heading.

```
23) =A41↵
    ''Enter =E22 to start Liabilities↵
```

Heading to tell operator where to go next on the worksheet. If you are setting up for 80 column, say G22 instead of E22.

```
24) =B25↵
    ''Cash↵

25) ''Marketable Securities↵

26) ''Accounts Receivable↵

27) ''Inventories↵

28) ''Other Current Assets↵

29) ''Total Current Assets↵↵
```

Enter the headings for the various current assets. Note that you hit Return twice on the last entry. You should now have the cursor in cell B32.

```
30) ''Plant and Equipment↵

31) ''    less Depreciation↵

32) ''Other Fixed Assets↵

33) ''Total Fixed Assets↵
```

Enter the headings for the fixed assets. Notice that the depreciation heading is indented slightly (three spaces).

```
34) =C25↵
    ''*↵

35) /RC25,C26:C29↵

36) /RC25,C32:C34↵
```

Enter asterisks in the worksheet where values are to be entered by the user.

```
37) =D30↵
    SUM(C25:C29)↵
```

Calculate the current assets.

```
38) =D35↵
    C32-C33+C34↵
    D35+D30↵
    =A22↵
```

Calculate fixed and total assets. Your worksheet should now look like Figure 1 with the cursor in cell A22.

Now we will build the Liabilities and Equity portion of the Balance sheet. The procedure will be quite similar to the techniques used for the assets' portion. So I will stop for explanations only if I am doing something special, or if I feel there is a possible misunderstanding.

```
39) =E22↵
    ''Liabilities↵
    =E29↵
    ''Long term liabilities↵
    ''Other Liabilities↵
    ''Total Liabilities↵↵
    ''Equity↵
    =E40↵
    ''Liabilities plus Equity↵
    ''Enter =A42 for Operating Stmt↵
```

This will complete the first column of the liabilities section of the Balance Sheet. If you are doing 80 column, remember to use column G instead of column E. You will also have to adjust the columns in the following instructions.

```
40) =F23↵
    ''Accounts Payable↵
    ''Notes Payable↵
    ''Accrued wages↵
    ''Accrued taxes↵
    ''Other Current↵
    =F34↵
    ''Common Stock par↵
    ''Preferred Stock par↵
    ''Paid in capital↵
    ''Retained Earnings↵
    ''Total Equity↵
```

Sets up the second column.

```
41) /RC25:C29,G23↵
    /RG23:G24,G29↵
    /RG23:G26,G34↵
```

Put asterisks where data is to be entered for liabilities.

```
42) =H28↵
    SUM(G23:G27)↵
```

Get the sum of the current liabilities.

```
43) =H31↵
    H28+G29+G30↵
```

Total the liabilities.

```
44) =H38↵
    SUM(G34:G37)↵
```

Sum the equity.

```
45) =H40↵
    H31+H38↵
```

Add the liabilities to equity.

```
46) H40-D36↵
    =E22↵
```

Your screen should now look like figure 2, with the cursor in cell E22.

Cell H41 will show a zero when the balance sheet is in balance. If the assets do not equal the liabilities plus equity, this cell will show the difference. It is a check on the figures entered. With SuperCalc 2, you can have a much more complicated expression, such as:

```
IF(H40=D36,(''Balanced''),(''Not Bal''))
```

This will cause an error message to be printed.

Now that the balance sheet is done, we can start to put the operating statement together. This report shows what the company did in the last year.

```
47) =A42↵
    ''Operating Statement↵↵
    ''Sales and revenues↵
    ''Other Income↵
    ''Total Income↵
    ''Cost of Goods Sold↵
    ''Gross Profit↵
    ''Operating Costs↵
    ''Net Operating Income↵
    ''Interest Expense↵
    ''Earnings before tax↵
    ''Taxes↵
    ''Income after taxes↵
    ''Dividends pd (Preferred)↵
    ''Available for Equity↵
    ''Dividends pd (common)↵
    ''Add to Retained Earnings↵↵
    ''Enter =E42 to go to Ratios↵
```

This provides all the titles for the Operating Statement. Note that there are two carriage returns after two of the titles.

```
48) =C43↵
    ''Amount↵
    ''*↵
    ''*↵
    C44+C45↵
```

This set of calculations computes the total income for the company.

```
49) ''*↵
    C46-C47↵
```

Now we begin to deduct the expenses. From here on we will subtract from the income.

```
50) /RC47:C56,C49↵
```

This is another example of a ripple move. When you enter data, you will enter every other number. The system will calculate the other figures such as Operating Costs or Income after taxes.

```
51) =D43↵
    ''% Sales↵
    100*C44/C44↵
    /RD44,D45:D58,AYN
```

The entire column will display ERROR. This is because the denominator (Sales) is zero. When the figures are filled in, the proper values will be calculated.

This set of instructions is a small view of what this article is all about. It changes the figures on the operating statement from numbers to percentages. We take the amount in column C and divide it by the Sales. This provides a way to compare the expenses in a company with $3 billion in sales to one with $100,000. Which one is truly more efficient?

The fourth line (the /R line) replicates the third line by adjusting the amount, but always dividing by the Sales.

Incidentally, you may want these percentages to always be in terms of total income, not sales. If so, change line three to read:

```
100*C44/C46↵
```

```
52) =A42↵
```

Your screen should now look like figure 3 with the cursor in cell A42.

We are now finally ready to calculate the ratios.

```
53) =E42↵
    ''Key Ratios↵↵
    ''Liquidity ratios↵
    ''Current Ratio↵
    ''Operating Ratio↵
    ''Quick Ratio↵↵
    ''Asset Management↵
    ''Inventory Utilization↵
    ''Fixed Asset Utilization↵
    ''Total Asset Utilization↵
    ''Collection period↵↵
    ''Debt Management↵
    ''Debt to Assets ↵
    ''Debt to Net Worth↵
    ''Times Interest earned↵↵
    ''Profitability Ratios↵
    ''Profit Margin ↵
    ''Return on Assets ↵
    ''Return on Equity ↵↵
    ''Market Value Ratios↵
    ''P/E ratio↵
    ''Earnings Yield↵
    ''Dividend Yield↵
    ''Price/Book ratio↵↵
    ''Altman Z score↵
    ''    indicates          X1=↵
    ''    Bankruptcy         X2=↵
    ''    possible ( 1.81    X3=↵
    ''    ) 2.99 is safe     X4=↵
    ''                         X5=↵
    ''                          Z=↵
```

This will complete the first row of titles for the ratios. Be careful when entering the titles. Some of them require two carriage returns.

```
54) =G45↵
    D30/H28↵
    D30/H31↵
    (D30-C28)/H28↵↵↵
```

Set up the formulas for the Liquidity ratios. Note the three carriage returns.

```
55) C44/C28↵
    C44/D35↵
    C44/D36↵
    360*B27/C44↵↵↵
```

This completes the set up of the asset management ratios.

```
56) 100*H31/D36↵
    100*H31/H38↵
    C50/C51↵↵↵
```

Set up the Debt Management ratios.

```
57) 100*C54/C44↵
    100*C54/D36↵
    100*C54/(H38-G35)↵↵↵
```

This completes the profitability ratios.

```
58) C5*C11/(C54*C15)↵
    100*C54*C15/(C5*C11)↵
    100*C9/C11↵
    (H38-C35)*C15/C5↵
```

This completes the ratios.

```
59) =G72↵
    (D30-C28)/D36↵
    G37/D36↵
    C50/D36↵
    (C11*C5+C7*C13)/(H31*C15)↵
    C44/D36↵
    1.2*G72+1.4*G73+3.3
    *G74+0.6*G75+.999*G76
    ↵
```

These are the formulas for the Altman Z score.

```
60) =E42↵
```

You screen should now look like the first 24 lines of figure 5. Figure 5 shows all of the ratios, not just those displayed on the screen.

```
61) =A1↵
    =C5↵
    /GA
```

These commands position you to start entering data. The /GA command will turn auto calculation back on.

Now is the time to save the worksheet. If you enter the data shown in the Figures, you can check your work. If the ratios shown in Figure 5 are not correct, first check that you entered the numbers in Figures 1 thru 4 correctly. If you did, then you must check the ratio formulas. Also, you must check that everything is in the cell it is supposed to be in.

When you have the blank worksheet correct, you are ready to begin analyzing the financial health of many corporations of all sizes. You can compare the large with the small, and see which are really doing a good job with the investors' (your) money.

Bibliography

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to type. Two commands I use in most documents are ^OC to center the heads, and ^OI to set tabs. Well, the modified WordStar is so fast that I must very quickly type the entire command because the ^O processes so fast that the main menu wants to display much faster than prior to the modification. I'm writing this the day after I noticed this change so I can not state what other functions will be affected.

I was very excited to see the Vixen announcement. *The Portable Companion* did a great job job in its articles. Gale Rhoades' article did explain, from her viewpoint, what she thought. She even mentioned not only what it had, but certain things it lacks. I could not find any mention of an external monitor connection. I have nothing against a seven inch amber screen, but I certainly enjoy my twelve inch amber monitor for long hours of work. How about a close-up picture of the keyboard? Gale explained arrow keys and by accident (and magnifying glass) I noticed what appeared to be two arrow keys to the left of the space bar. Does this mean to use the arrow key(s) to move around a spreadsheet, both hands (without crossover) must be utilized to move around?

With the vast amount of public domain software, and two good RCP/M boards (Southfield and Dearborn, Michigan) and one super-duper board (Royal Oak, Michigan) I find it difficult to maintain some orderly method of keeping track of what I actually have without a good index. Generally I would print out the directory of all my disks (to give me the file name and room remaining — XDIR). But when I run across a program or ".LBR" (library file) that interests me, I would have to fumble through many sheets of paper. How to rid this? Enter SuperCalc 2. I now enter my file names and disk number in column A and hit /A for arrange. I now have an alphabetized listing on one sheet that with a quick glance lets me know what I have and where it is.

Joseph M. Janules
Sterling Heights, MI

Advertiser Index

Feature

16-Bit MS-DOS & CP/M For Your Osborne One!

The CO-POWER-88 board adds an 8088 processor, the MS-DOS, CP/M-86 and CP/M systems, and a 256K memory disk available under regular CP/M.

Robert J. Thomson

Your eyes do not deceive you. My Osborne 1 has been modified to run 16-bit software on both the MS-DOS™ and CP/M-86™ operating systems, while still retaining the capability to run all of my CP/M® 8-bit software. Not only that! I also have a 252K RAM disk available when running in the 8-bit mode. And all for only $560!!

This magic is performed by the installation of CO-POWER-88 from SWP Microcomputer Products, Inc. of Arlington, Texas. CO-POWER-88 is an add-on board with an 8088 microprocessor chip and some memory chips that provide 256K of RAM and the software to drive it.

I first talked to SWP about a version of CO-POWER-88 for the Osborne 1 in mid-December. It was ordered in mid-February. It arrived in mid-April. I seem to have a mid-month fetish. No matter. It is now installed, and has been running for a month, and works fine!

Like so many companies in the microcomputer industry, Software Publishers (SWP) seem to be having ordering and delivery problems. When you call to enquire about your order, they are "waiting for parts" or some such response, and they are expecting to ship "real soon." There is a hint that they have been swamped with orders and are trying, valiantly, to catch up. Anyway, if you expect about a two-month wait for your order to arrive you probably wont be disappointed. If it shows up earlier than expected, you will be pleased; if not, it's what you expected.

CO-POWER-88 has been available for the Kaypro II computer for some time but only recently has it become available in an Osborne 1 configuration. The principal differences between the Osborne and Kaypro configurations are in the hardware pieces which adapt the board to the computer chassis, and the power adapter cable. The 8088 board itself is the Kaypro board — it says so right on it!

The notes provided by SWP state that this installation describes the interface with Osborne 1s which have undergone the 80 column (SCREENPAC) upgrade. All instructions refer to how it interfaces with the Osborne's 80 column board. Osborne 1s that have this upgrade are, of course, double-density machines.

The installation is straightforward, requiring no soldering. However, since the board is installed inside the case, you must disassemble your Osborne. If you have the blue case Osborne 1, this is easy to do. But I have one of the old tan case machines.

What You Get

The number of separate parts provided is small. The kit, shown in figure 1, contains the following hardware:

- Main 8088 board, which is approximately $5^3/_4$" by 7", contains the 8088 microprocessor, 256K of memory and several other support chips.

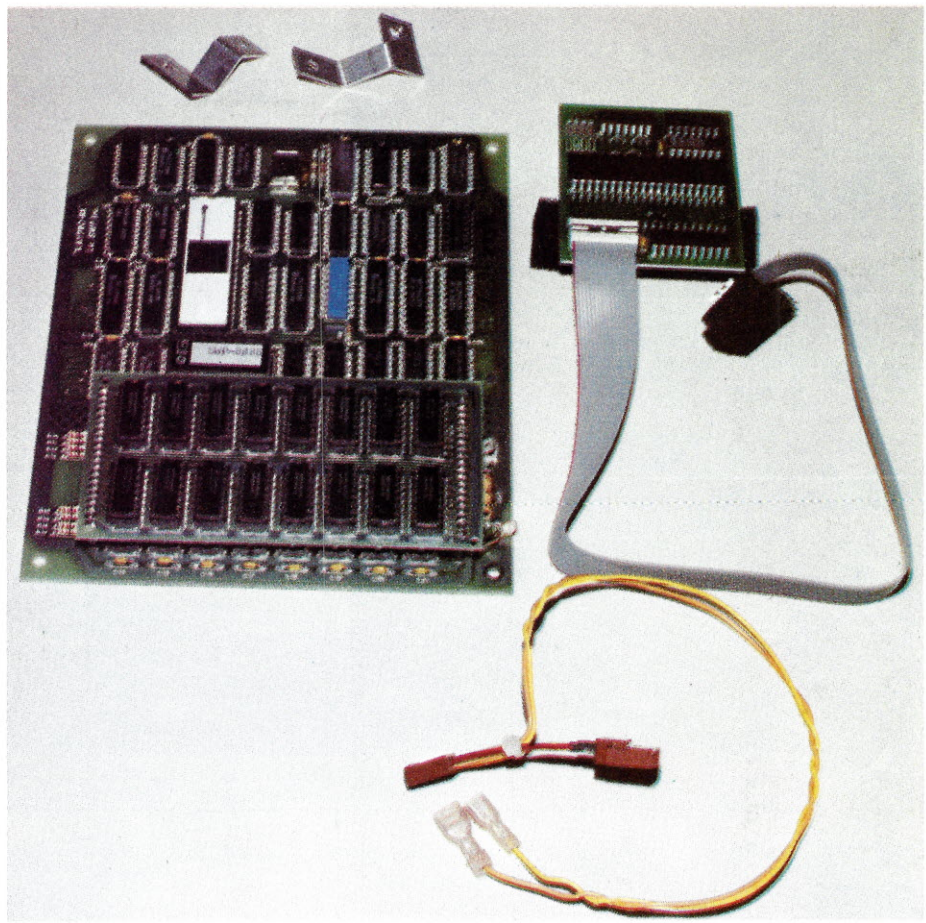
- Adapter board, about 3" by $2^1/_2$" containing a Z80A processor, two other support chips and 13 inches of flat 16 conductor cable. The connector at the end of this cable fits into a receptacle on the 8088 board during installation.

- Power cable assembly.

Plus you get a package of installation hardware including:

- Two aluminum "Z"-shaped mounting brackets with 4-40 nuts pressed in place.
- Two 4-40 pan head screws.
- A plastic PC board standoff and a metal PC board standoff which screws into the plastic one.

The software provided with the system includes a CP/M-80 disk with programs to load MS-DOS and to configure the RAM Disk, and the MS-DOS version 2.11 operating system. The MS-DOS 2.0 manual is provided along with about ten pages of notes from SWP on how to run their system. CP/M-86 is available as an option. Disks containing the CP/M-86 system and RAM Disk software are provided. The CP/M-86 manual provided is the IBM PC version.



Robert J. Thomson

Figure 1. *The CO-POWER-88 kit from SWP Microcomputer Products adds an 8088 processor to the Osborne 1 or Kaypro II computer.*

Differences: Tan vs. Blue Case

Some of the tan case Osborne 1 components are shaped differently than their counterparts in the blue case, and the Osborne main board mounting arrangement is also different. In both cases, it is necessary to disconnect the keyboard cable, undo and pull off the brightness and contrast control knobs and remove a half dozen or so screws to remove the bezel from the front of the machine.

One major difference between the two Osborne case configurations is the way you gain access to the Osborne 1 main board. The blue case is designed as a two piece unit with the split along the horizontal center line. By turning the machine upside down and unfastening a few screws, the bottom of the case can be removed to reveal the main board. The other half of the case remains in place.

To disassemble the tan case, it is necessary to remove all of the case mounting screws including those holding the carrying handle to the case, and slide the computer forward and out of the case. The tan case remains in one piece. Although the cable assembly of the rear-mounted power switch panel is long enough to allow the machine to slide clear of the case, removal of the few screws holding it in place will allow the computer to be completely separated from the case, greatly simplifying handling of the unit.

In the blue case, the Osborne main board is mounted to "I"-shaped metal strips which in turn mount on four posts molded into the case. These posts accept the screws which hold the two halves of the case together. The "Z" brackets provided to mount the 8088 board are designed to mount on the two posts on the A drive side. When mounted this way, the 8088 board will not interfere with the Z80 adapter board which replaces the Osborne Z80.

In the tan case Osborne, a metal angle bracket is pop-riveted to the plastic chassis providing mounting support for the Osborne main board (see figure 2). Consequently, while the aluminum "Z" brackets provided by SWP to mount the 8088 board in the Osborne may work fine with the blue case, they need modification and different placement for use with the tan case.

This is not a significant problem, but it does require modification of the "Z" brackets. Two holes must be drilled in the existing metal angle bracket to accept the "Z" brackets provided to mount the 8088 board, as shown in figure 3.

Relocating the 8088 Board

Facing the Osborne 1 CRT, the 8088 board is located on the left side, just under the A drive and above the main board. Since the bezel contains two "disk pockets" which fit between the disk drives and the main board, the 8088 board has to be installed close to the Osborne main board to avoid interference with the disk pockets in the bezel

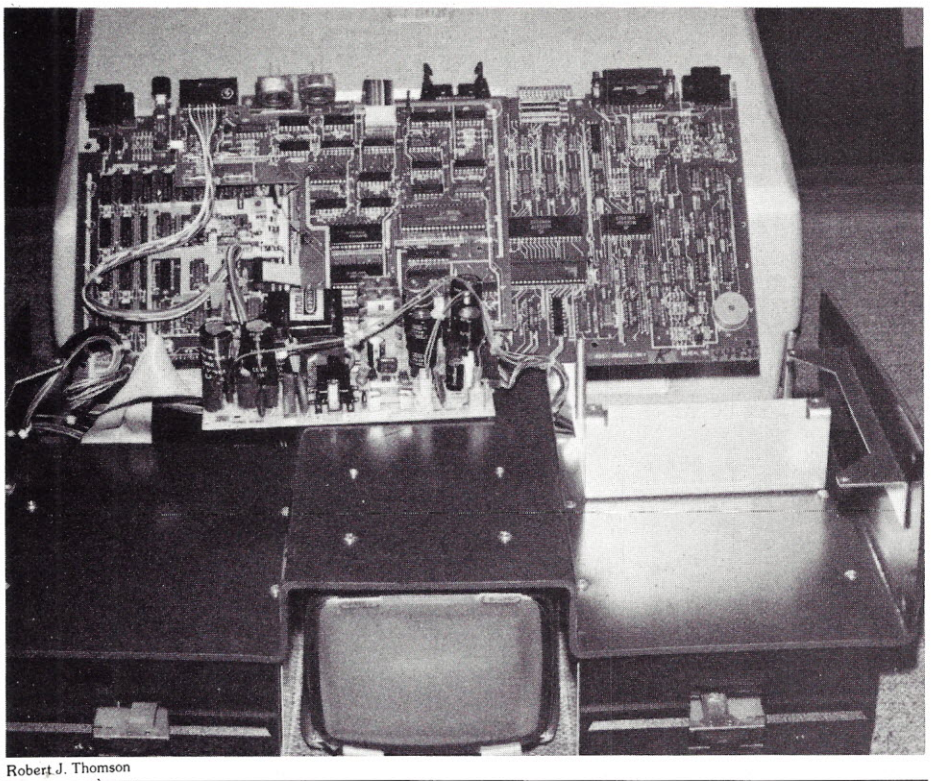


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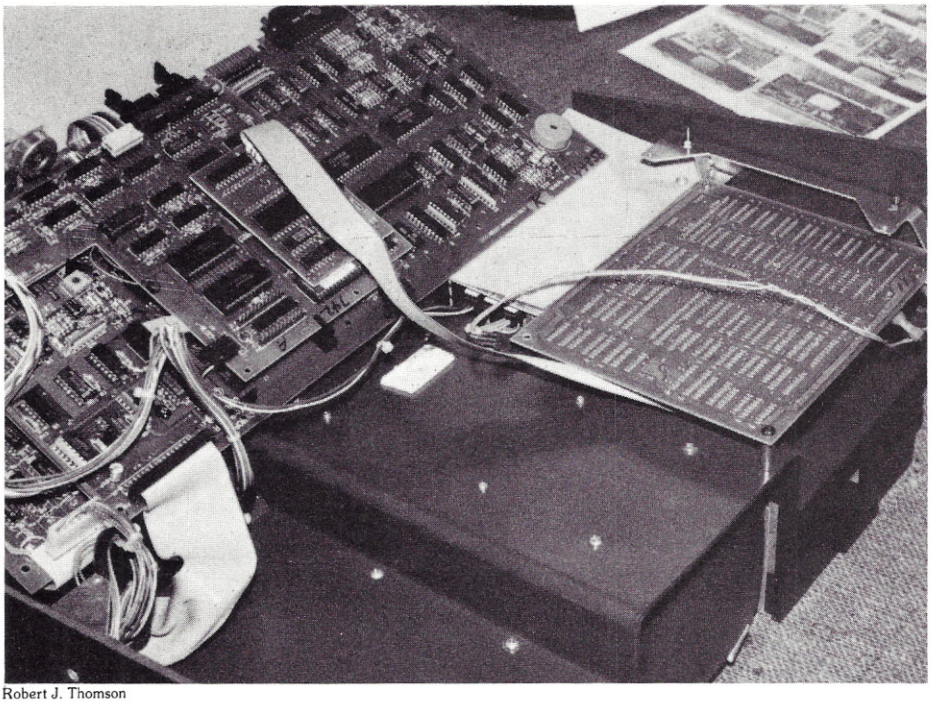
Figure 2. *In the tan case Osborne, a metal angle bracket provides mounting support for the main board.*



Robert J. Thomson

Figure 3. *For tan case Osbornes you must modify the "Z" brackets supplied to support the CO-POWER-88 board. Two holes must be drilled in the existing metal angle bracket shown in figure 2.*

during re-assembly.

In tan case machines, these disk pockets are tapered more than on the blue case models so that the opening is larger at the bezel face. This additional taper requires that the 8088 board be mounted closer to the Osborne main board than proposed by SWP for the blue case machines. Consequently, in the tan case Osborne, instead of the 8088 board being mounted on the "Z" brackets as instructed by SWP, it is necessary to relocate it to the under side of the brackets and to separate it from the brackets with nylon spacers (approximately 1/16th of an inch). The result is that the 8088 board is moved closer to the Osborne main board by about 1/8th of an inch.

Modifying the "Z" Brackets

Modification of the aluminum "Z" brackets required some notching, cropping and re-drilling to fit the 8088 board as close to the outside of the chassis as possible, and to lower it somewhat more than the blue case installation called for. This left sufficient clearance for re-installation of the bezel with its larger disk pockets.

We did the following to modify the "Z" brackets:

1. Interchanged the intended placement of "Z" brackets. That is, the "front" bracket went to the back position and the "back" bracket went to the front position.

2. Notched the rear "Z" bracket to clear the pop rivet which holds the Osborne main board mounting bracket to the plastic chassis frame.

4. Drilled two holes in the Osborne main board mounting bracket to accept the "Z" brackets.

5. Used two 6-32 machine screws, lock washers and nuts to mount the "Z" brackets to the Osborne chassis.

6. Moved the mounting holes for 8088 board on the "Z" brackets outward approximately 1/4" to relieve interference between the inboard edge of 8088 board and the Z80 adapter board, and cropped the bracket to remove the existing mounting hole, so as to assure no interference with the power leads on the 8088 board.

7. Placed nylon washers (spacers) between the board and "Z" brackets and mounted the board on the side of the "Z" brackets closest to

the Osborne board. This required that the front bracket be notched to accept the 8088 board.

8. Installed the nylon and metal PC board standoffs on the front corner of the 8088 board opposite the "Z" brackets. The standoffs provide spacing and support from the Osborne mother board.

The installation after these modifications is shown in figure 4.

Moving the Power Supply Bracket

In my installation, the 8088 board stuck out about 3/32" beyond the front of the plastic chassis to which all Osborne components are mounted, even when the 8088 board was butted against the power supply mounting bracket at the rear of the space. Normally, the bezel mounts flush against this plastic chassis, so unless corrected, the 8088 board would prevent proper flush replacement of the bezel on my tan case machine. The fix for this problem was simple, although before proceeding with it some thought was given to the consequences.

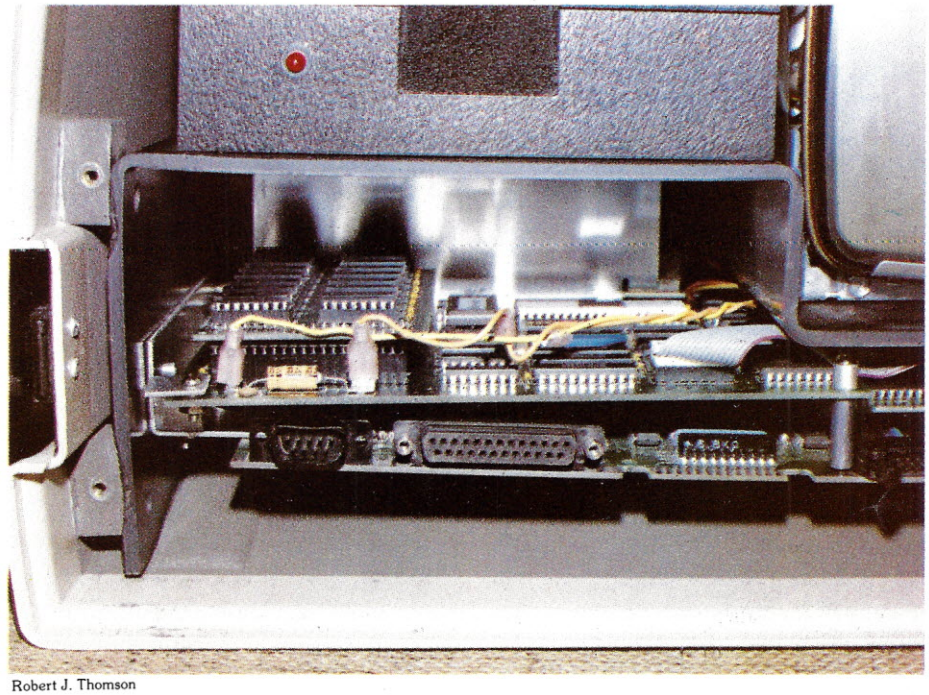
The solution is to remove the Osborne power supply from its mounting bracket (by removing four screws), as shown in figure 2, and to simply bend the mounting bracket and the two mounting posts toward the back about 1/8", sufficient to move the front edge of the 8088 board back until it is flush with the front edge of the tan case Osborne's plastic chassis. After this operation, re-installation of the power supply was achieved with no problems.

Installation of the Z80 Adapter Board

The Z80 adapter board holds the replacement Z80 with the circuitry, interfacing cable and connector to connect it to the 8088 board. The installation of this small board is a simple operation. The most difficult part is removing the existing Z80.

If it is a tight fit, it takes some persistent and careful prying, taking special care not to put stress into the PC board. The adapter board simply plugs into the Z80 receptacle. You must make sure, of course, that the new Z80 is oriented in the same way as the one it is replacing. That is, Pin 1 on the new one is where Pin 1 on the old one was.

There is a 13 inch long ribbon cable to join the adapter board to the 8088 board. A connector on one end plugs into a DIP socket on the Z80 adapter board. The connector on the opposite end plugs into a DIP socket on the 8088 board. Again, its orientation is important, but SWP's instructions are clear and no problems were encountered in this part of the installation. The installed Z80 Adapter Board is shown in figure 3.



Robert J. Thomson

Figure 4. *The resulting installation after modifying the brackets.*

The installation is straightforward, requiring no soldering, but the board must be installed inside the case, and you must disassemble your Osborne.

Power Adapter Cable

My Osborne has the double density and 80 column (SCREENPAC) upgrades which were performed at the Osborne factory. SWP's installation instructions note that they have color coded the power adapter cable to match the (blue case) installation which they used as their model. The color coding matches the upgraded tan case Osborne exactly, so there was no problem with it.

Installation of the power adapter cord involves the simple removal of an existing plug from a receptacle on the power supply, replacing it with the one provided and plugging the original plug into the adapter cable. The other end of the cable has two differently-sized spade (FASTON) connectors which can be attached to the 8088 board only one way. Thus, bringing power to the 8088 is simple and requires no soldering.

If you had an upgrade other than the one Osborne installed, there may be some difference in the power adapter cable arrangement. However, there are only two wires involved. One is 5 volts DC and the other is ground. The 5 volt line goes to the smaller of the two spade (FASTON) connectors. If you are the least bit technically inclined, you should be able to determine which is which.

Putting It Together

After re-assembly of the power supply, the 8088 board was fastened to the modified "Z" brackets as described above, and the PC board standoffs attached to the opposite front corner of the board. With the Z80 Adapter Board installed the Osborne main board was brought into position to be re-mounted on the chassis. The excess length of the ribbon cable, between the Z80 adapter board and the 8088 board, was taken up by folding it over as the boards are brought together during installation. The completed installation is shown in figure 4.

Re-assembly of the computer was uneventful. It is easier to get the Osborne 1 back into the tan case if you turn it upside down before sliding it back into place. The power switch panel is re-installed first. Then, the power cable assembly is carefully fed into the space under B Drive as the computer is slid into the case. The screws holding the case to the handle assembly, the chassis mounting screws and the front bezel screws were replaced and the the machine was plugged in.

The Smoke Test

When the power was turned on the system ran OK, performing all the advertised functions. After running for fifteen or twenty minutes, the Osborne screen went blank and the machine did not respond to commands. Turning the power switch off and on again did not result in the Osborne's familiar flash of disk drive lights and the sign-on "beep." The fuse on the power switch panel was OK. We disassembled the computer to check the fuse on the power supply. It was OK, too. While the machine was disassembled, we plugged it in. Lo! It came alive properly. Everything worked!

Tentative conclusion: The system runs hotter than it did without CO-POWER-88 and activates a thermal protection device in the Osborne 1 (or overheats something until it goes out of tolerance) and shuts the system down. After a few minutes, the system cools enough to begin working again. Cooling the system with a fan yields a reliable working system. A simple $10 desk fan blowing on the front of the machine suffices. However, the addition of a fan to the case would also do the job. The SWP instructions state that a fan *may* be required. In my experience, one *is* required.

How hot is hot? The 8088 chip runs hot to the touch. Surface temperature was measured with a probe and found to be around 50 degrees C (122 degrees F). Apparently this affects the operation of some component to cause a shutdown. However, as noted, you can re-establish reliable operation simply by using a small cooling fan.

Running MS-DOS on the Osborne 1

Loading MS-DOS is simple. SWP provides an MS-DOS "Load" disk which contains CP/M-80 software which instructs CO-POWER-88 to load the MS-DOS system. A screen message tells you to select either Drive A or Drive B as the drive in which MS-DOS will be loaded. The "Load" disk is removed and a disk in MS-DOS format containing at least the MS-DOS file COMMAND.COM is placed in the drive to be selected. Upon keying in the drive selection, MS-DOS loads.

When first loaded, it asks for the date and time. If you enter the date, every file you create in this session will carry that date when placed in the disk directory. Once the system is loaded, you can remove the MS-DOS system disk, and load application programs and data disks from drives A and B.

When exiting from an MS-DOS application program, the system will expect to find the file COMMAND.COM to reactivate MS-DOS. If you copy this file onto the disk in the drive from which the system was booted, you will save a bit of disk swapping.

Two disks are provided by SWP. One is a CP/M-80 disk containing MSDOS.COM, which is the MS-DOS "Load" file, and RAMDISK.COM. The RAMDISK.COM file is used to configure the CO-POWER-88 as a disk emulator for use with CP/M-80 programs.

The other is an MS-DOS System & Utilities disk containing the MS-DOS command processor file COMMAND.COM and standard MS-DOS utility files. SWP has added a file called Z80.EXE which will exit MS-DOS and return to CP/M-80.

Before proceeding to run an MS-DOS program, I formatted some blank disks in MS-DOS format running the MS-DOS utility program FORMAT.COM. Then by loading an MS-DOS version of a program in Drive A and a blank disk in Drive B, for data files, I was all set to check out operation of the Osborne 1 in the 16-bit world.

CP/M 80 MultiPlan Files Run in MS-DOS

I have a CP/M-80 version of MultiPlan for my Osborne 1. An aggravation with the Osborne version is that it is set up to display only 52 columns on the screen, even when you have the 80 column capability.

I installed the MS-DOS version of MultiPlan on the Osborne with CO-POWER-88. It runs fine with a full 80 column display. I did not take time to install the underline, familiar to Osborne owners of MultiPlan or SuperCalc, as the cell marking cursor. Instead, the cursor is marked with square brackets. In the MS-DOS version, the cursor marking brackets do not occupy the same position as the end characters in the cell, thus obliterating them as they do in some CP/M 80 versions I have seen.

Why, you may ask, do I want an MS-DOS version of MultiPlan when I already have a CP/M-80 version? The answer is that in MS-DOS I have 256K of memory available to me, while in CP/M-80 I have only 64K. This can make a tremendous difference in operation, since it allows at least four times as much data to be put into the spreadsheet before encountering the dreaded MEMORY FULL message — and I can display 80 columns of the spreadsheet.

I have just had time to run a few simple tests on MS-DOS, using MultiPlan as the example. I have found that the a MultiPlan spreadsheet created on my Osborne in the CP/M-80 version and copied to an MS-DOS formatted disk (using the format translating program Uniform) can be loaded and run in the

MS-DOS version of MultiPlan. When I tried to go the other way, from MS-DOS to CP/M 80, it did not work. I got the message that the file is "not in spreadsheet format."

As mentioned above I have copied the MS-DOS file COMMAND.COM to my MultiPlan "program" disk so that I can exit the spreadsheet and return to MS-DOS with no disk swapping.

Running the RAM Disk

I have done little more than copy the distribution disks for MS-DOS and CP/M-86 and, of course, run the RAM Disk. This is very simple. Both the MS-DOS "Load" disk and the CP/M-86 software distributed by SWP contain the RAM Disk software.

The RAM Disk is activated by typing `RAMDISK` ↵ and answering questions about what to "name" it, whether or not to "clear" its directory (you normally type `Y`, for yes), and a couple of questions about the choice of its location in memory. If you choose the default value with a Return, it loads just below the CCP (Console Command Processor portion of CP/M).

You can configure the RAM Disk to any drive letter (from A to P) you want. It provides 252K of formatted space. If you choose to name it Drive A, then the two existing floppy disk drives become B and C and the system tracks are copied to the RAM Disk. Any subsequent "warm boot" (Control-C) reads the system from the RAM Disk.

If you name it "Drive B" then, existing drive A remains A, and former drive B becomes drive C.

If you name the RAM Disk Drive A, the system tracks are automatically copied to the RAM Disk so that "warm boots" can be performed directly when you type Control-C with no mechanical running of either of the floppy drives.

We ran WordStar® from the RAM Disk with good results. With WordStar and the text file both on the RAM Disk, execution speed was somewhat improved. For example, scrolling from the beginning to the end of a 65K text file was reduced from 45 seconds on a floppy disk drive to 10 seconds on the RAM Disk. The real payoff in time saving should come, however, in data transfers where there is a lot of input/output and disk read/write operations.

The RAM Disk is useful for running any CP/M-80 application program. dBASE II™ operations, for example, would be improved. It also makes it much easier to copy a disk with a two-drive Osborne, using the Ram Disk as drive A.

All things considered, the CO-POWER-88 board is worth the price. It does turn your Osborne 1 into an MS-DOS or CP/M-86 computer, while keeping its CP/M-80 personality, making your computer suitable for running both 8-bit and 16-bit programs. It may be just what you need to keep your feet in both the 8-bit and the 16-bit worlds.

Osborne Computer Exits Chapter 11 on January 18th, 1985

Fremont, CA — Osborne Computer Corporation announced that it will exit Chapter 11 protection on January 18th, under approval granted by the U.S. Bankruptcy Court of the Northern District of California.

The exit clears the last legal impediment for concluding Osborne's current limited public stock offering of $3 million to California residents and overseas investors. This timing of a bankruptcy exit and public offering, while not unprecedented, is a first for the computer industry. Fewer than 20 percent of all businesses that enter Chapter 11 survive to exit.

The company filed for protection under Chapter 11 of the Federal Bankruptcy Code on September 13, 1983, after having been, for awhile, the prototype high-flying Silicon Valley enterprise. The company introduced the first portable computer in the Spring of 1981.

In mid-December, 1983, a new management team received permission from the company's creditors, and the authority of the court, to restructure the company. That plan received the overwhelming support of 95 percent of the company's creditors.

In the past 13 months that management team has restructured the company's operations and come back from a financial abyss. They eliminated the bank debt, preserved a net operating loss carryforward of at least $18 million, introduced two new products (the Osborne 3 and the Vixen), and announced the limited public stock offering.

The management of the restructured company (known alternately as the "gang of four") includes Ronald J. Brown, President; Chodi McReynolds, VP Operations; James Schwabe, VP Product Marketing; and David Miller, VP Sales & Marketing.

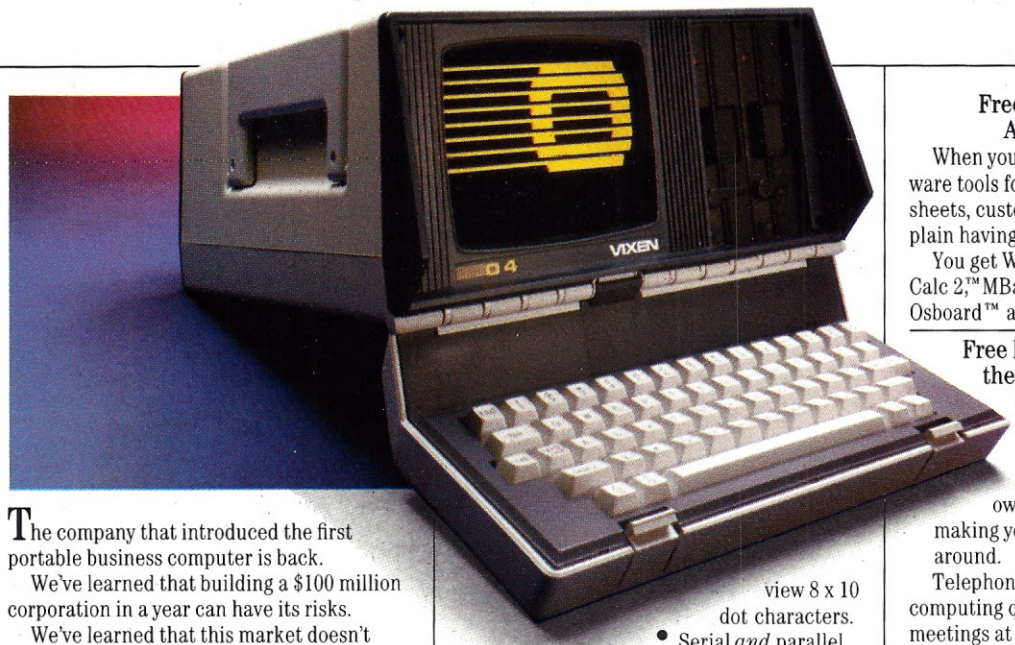
According to Brown, Osborne was the first company in the portable computer field, the first personal computer manufacturer to go into Chapter 11, and is now the first to re-enter the marketplace in a lean, aggressive, streamlined form.

"We have been a bellweather of the industry from day one, and we continue to be," according to Brown. "We've learned from the excesses of the original company, and we are now ready to prove there is room in the personal computer business for more than two or three players, provided a company does its homework and tightly focuses its business."

Osborne plans to close its initial public offering within 30 days.

This IS THE COMPUTER WE WERE GOING TO INTRODUCE BEFORE YOU-KNOW-WHAT HAPPENED. ONE YEAR LATER, IT'S STILL AHEAD OF ITS TIME.

INTRODUCING THE OSBORNE VIXEN.™



The company that introduced the first portable business computer is back.

We've learned that building a $100 million corporation in a year can have its risks.

We've learned that this market doesn't need another IBM® clone.

And with all today's talk about windowing, 16- and 32-bit systems, we've noticed that the all time best-selling microcomputers are still the 8-bit Apple®s. They invite you to compare. So do we.

Like Apple, the Osborne computing concept has served certain people very, very well.

So well that over 100,000 of you have bought Osborne computers.

So well that to date, only a few computers have a bigger installed base.

The demand continues.

This is Vixen. The essence of the Osborne concept. Yet improved in every respect.

We took the best features of existing Osbornes and put them in a smaller case. With a bigger screen. 80-column display. And even faster response time. Result: The most powerful portable in its class. The Vixen is a fraction of the size of other Osbornes—yet it's *packed* with features lap-sized computers make you sacrifice.

Designed to endure.

Look what Osborne gives you now:

- Two double-sided, double-density, half-height *400K* disk drives let you store up to *100* typed pages per disk.
- 7-inch diagonal, power-saving built-in amber monitor.
- 80-column, 24-line display with easy-to-view 8 x 10 dot characters.
- Serial *and* parallel ports let you connect the Vixen to any printer or modem.
- CP/M® operating system, for access to the huge library of CP/M productivity software.
- 90-day warranty.

All in one neat little package that is smaller than an IBM Selectric typewriter—and about half the weight!

And all for $1298.

Take it away.

The Vixen is data-disk compatible with IBM PCs—and more.

Free Media Master™ software lets you exchange data diskettes between the Vixen and over 200 other computers, including the IBM PC.

Your computing capabilities just expanded 200 times over.

Free productivity software: An Osborne tradition.

When you buy the Vixen, we give you software tools for writing, for creating spreadsheets, custom programming, graphics and plain having fun.

You get WordStar®/MailMerge,® SuperCalc 2,™ MBasic,™ Desolation, Media Master,™ Osboard™ and TurnKey. Free.

Free Membership in FOG, the First Osborne Group: Support network, newsletter, and access to a huge library of public domain software.

Osborne will buy every Vixen owner an annual FOG membership, making you part of the largest user group around.

Telephone experts for answers to your computing questions. You can attend group meetings at over 300 locations. And take advantage of thousands of public domain software packages in FOG's ever-expanding library.

Fellow FOG members are a terrific source for tips on getting more from your Osborne. Thinking of buying a new program? Check its track record with FOG members who already use the package before you invest.

Here it is: Portable, powerful, reliable and data-compatible.

If you liked Osborne computers before, you will absolutely, positively, ***love*** *this new machine.*

OSBORNE

YES, I want to know more about the Vixen, Osborne's newest computer.

Osborne Computer Corporation
42680 Christy Street
Fremont, CA 94538

Name _____

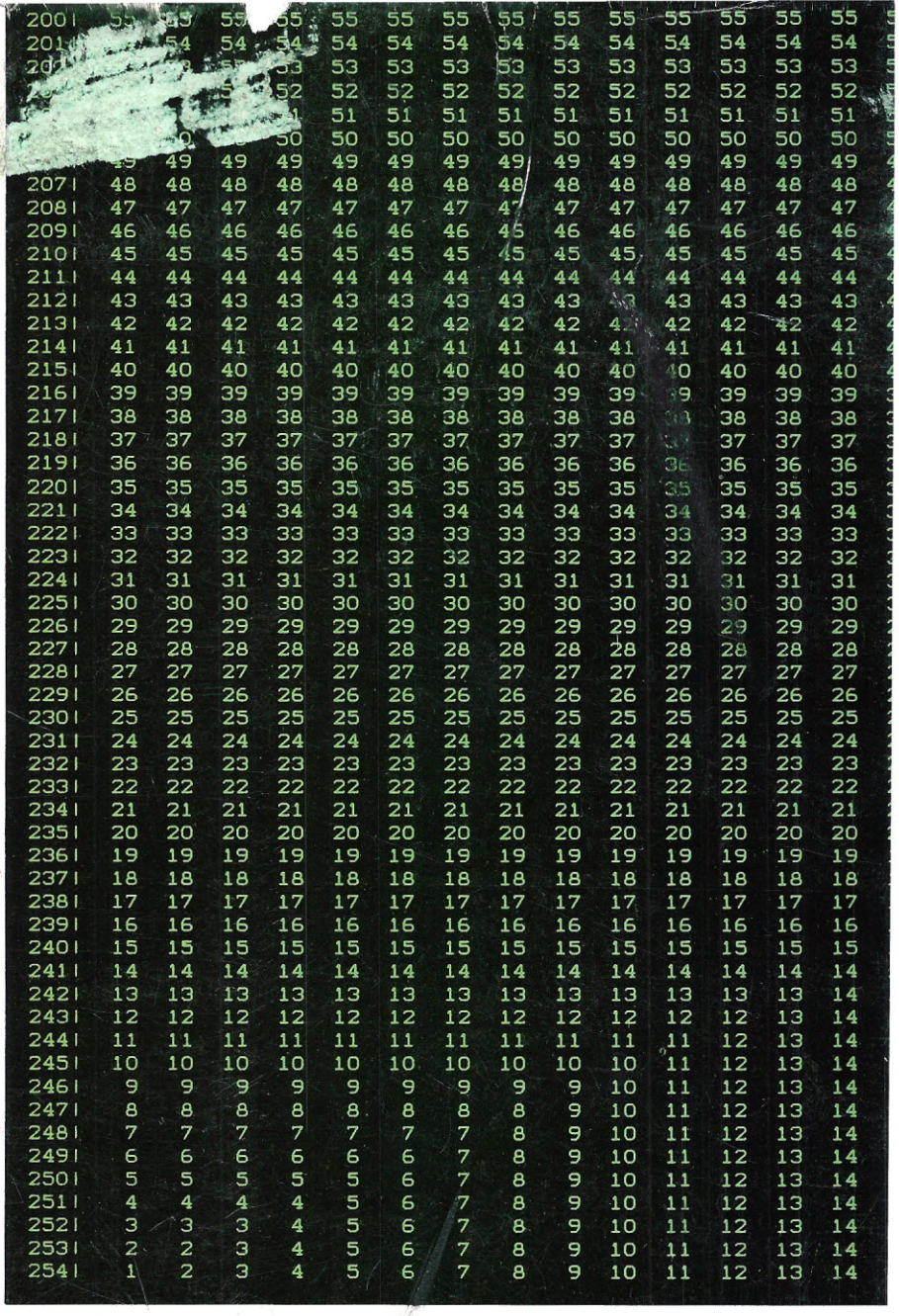
Address _____

City _____ State _____ Zip _____

Phone number ( ) _____

☐ *Send me more information on the Osborne external hard disk.*

GoodBye Small Spreadsheet.



Introducing SuperSize SuperCalc² For Osborne Owners. The Start of Something Very Big.

Big Memory. Big Spreadsheets.

If you've been stopped by the MEMORY FULL message (and who hasn't), we've got the solution for you.

Available exclusively from WestWind, the expanded memory version of SuperCalc² for the Osborne 1 and the Executive is finally here!

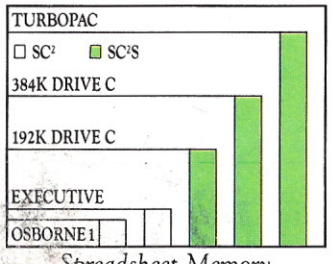
SuperSize SuperCalc².

Combine it with the hi-speed RAM in our Drive C to create big spreadsheets for your big jobs.

Get our 192K Drive C, 384K Drive C or Drive C/Trantor hard disk combination (TurboPac) with SuperSize SuperCalc² (SC²S) to get the big memory you've been waiting for!

The biggest news is the price. SuperSize SuperCalc² is included FREE with Drive C.

Now add big SuperCalc² spreadsheets to the list of big Drive C features that turn your Osborne into a dynamic, new computer.



Spreadsheet Memory

SC²S is a fully licensed version of SuperCalc². If you're a SuperCalc 1 user, you don't need to purchase the SuperCalc² upgrade (a $125 value) to use SC²S. The SuperCalc² Manual is available for only $49 with the purchase of Drive C. SuperSize SuperCalc² is not compatible with Osborne or Corvus hard disks.

For information call 415-652-3222. To order call TOLL FREE (800) 526-6500 (in CA (800) 831-3144). Or write WestWind Computer at 1690 65th Street, Emeryville, CA 94608.

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– Osborne 1, Executive - For more WestWind Products see Pgs. 25-30.